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Light Crude In Southwest Declines About 8 Per Cent, July To January

Staff Special

CLEVELAND, Jan. 25

SINCE the first of July, during which month the prices of Mid-Continent grades were reduced, there has been a decline in daily production in crude oil of 35 degrees and better of a little more than eight per cent. This decline, which embraces the light oil fields of Oklahoma, Kansas, central and north Texas Louisiana and Arkansas, is reflected first in the Nov. 22 posting of a gravity price schedule and latterly in the advance of 10 cents made on Jan. 13.

During the seven months which elapsed between the dates used for comparison the total production of the two areas (Mexia-Currie not included in this analysis) has increased from 778,639 barrels to 829,965 barrels, or a gain of 51,326. In this figures the Smackover heavy oil production. When the oil of grades below 35 Be. are eliminated from comparative production averages, it is apparent what has happened to the output of the crude which is so highly prized for gasoline content.

The loss between these dates on this high gravity oil was nearly 45,000 barrels daily, as shown by the subjoined tabulation.

In Oklahoma there were several light oil areas which were active, among them being the general area known as Bristow, Burbank, Tonkawa and Wetumka. Declines are at this time apparent or have occurred in practically all light oil areas with the exception of Tonkawa, which is due to gain considerably in the daily averages of the next few weeks, its production being likely to reach 50,000 barrels daily with the drilling and territory now in sight and it is altogether likely to be much extended. Burbank is showing no particular change either way and many of the companies operating there will before long have finished their drilling.

The well over the line in Kay county from the Burbank pool, however, puts a new face on things to the northwest and at its present rating of 400 to 500 barrels will call out considerable activity in that area. The oil is 38.1 gravity.

Tonkawa Average Up

Tonkawa's daily average at this time is some 10,000 barrels higher than that shown in the accompanying table. There have been small declines elsewhere and Burbank is at about the figure given. The total percentage of loss in all the territory included in these figures would be lowered a little on the basis of today's averages, but the approach of the season of greater consumptive demand offsets any such advantage. So far as the light oil is concerned, the call is distinctly for more and an immediately stimulated drilling campaign will begin to show results about the time spring opens.

Comparative Production of Mid-Continent Crude Oil of 35 degrees and Better.

Jan. 1, 1922	July 1, 1922	Increase or Decrease
Eastern Oklahoma		
245,825	236,045	+ 9,780
Southern Oklahoma		
10,852	13,182	— 2,330
Kansas		
29,441	36,132	— 6,691
North and Central Texas		
121,319	138,221	—16,902
North Louisiana and Arkansas		
86,534	115,383	—28,849
493,971	538,963	—44,992

Loss of slightly more than 8 per cent.

The figures presented herewith are estimates of major companies, checked against each other and are as representative of the dates mentioned as it is possible to get them. Those for Oklahoma are on the basis of monthly averages while those for the other territories represent production on specific dates.

In north and central Texas, the only gain of consequence has been in the Electra field. Burkburnett has lost considerably and is not capable of great stimulation, unless there is included in this the new area known as the Northwest Clara pool, in northern Wichita county, which has shown several good wells. The Ranger territory and Stephens county, particularly the latter, will respond somewhat to the higher prices, but it will require further advances to make any consequential difference in the amount of drilling.

In Louisiana, there is not much more drilling to be done within the present defined limits of Haynesville and the trend of this pool is down. The same is true of El Dorado. Smackover, while in the heavy oil classification, now seems to be past its "peak," both in the heavy original pool, where many wells have reached the pumping stage, and in the southwest pool of 28 gravity oil, which is assuming a "spotted" character.

With only one field in this entire area now indicating increased output of high gravity oil within a relatively short time, that is, Tonkawa, it is apparent that the search for new light oil pools will be taken up with more zest than ever. First of all, in the north central part of Oklahoma, in such counties as Noble, Grant, Garfield and Kay, where existing pools produce the highest grades of gasoline crude in the Mid-Continent, the wildcatting is certain to be pushed rapidly.

There is now stimulus in most of the lesser pools producing high grade oil for drilling up such locations as remain and working over old wells to increase the output.

New Grading In Latest Advance

TULSA, Jan. 13.—Effective at the opening of the market this morning, the Prairie Oil & Gas Co. posted a new scale of prices for crude oil in Oklahoma, Kansas, and north Texas. Under the new schedule, which is the first change made in the gravity prices adopted Nov. 22, 10 cents per barrel is added to each grade included in the old schedule, and in addition a new grade is added, carrying a price of $2.10 a barrel for oil of 42 gravity and over. Compared with the highest price prevailing under the preceding schedule, this new grade represents an increase of 30 cents a barrel, as prior to this change, the Prairie had offered a maximum of $180 for oil of 39 gravity and over.

Under the new scale of prices, the minimum price offered is $1, for oil grading below 28 gravity, as compared with 90 cents heretofore prevailing. The complete list is as follows: Below 28, $1; 28-29.9, $1.10; 30-32.9, $1.20; 33 to 34.9, $1.35; 35-36.9, $1.50; 37-38.9, $1.70; 39-40.9, $1.90; 41 and over, $2.10.

The Sinclair Crude Oil Purchasing Co. and Gypsy Oil Co. immediately met the new scale of prices, effective this morning.

It is apparent now that the prices adopted by the Prairie, Nov. 22, were not high enough to accomplish the desired purpose of obtaining for that company a much needed influx of high gravity oil into its lines. That this was the case has been the opinion of most observers of the situation, and they now take the position that it will not be a great while until further increases will be made.

Would Stimulate Drilling

It is apparent also that the Prairie hopes, by increasing the price of the lower gravity oils as well as the high, to stimulate drilling and it is highly probable that the new prices will have that effect. Even under the scale of prices prevailing before today, indications were that the early part of this year would see a considerable increase in drilling operations. This was indicated by a large increase in new rigs and locations, as shown in a review of operations in last week's issue of **National Petroleum News.** With

the added stimulus of an increase in price, there will undoubtedly be a great deal of drilling activity in progress during the next few months.

Oklahoma's production, which is now about 427,000 barrels daily, is less by approximately 4000 barrels than it was at the time graded prices went into effect, but production of high gravity oil today is higher than it was then. This is due to the great increase shown by Tonkawa since that time while other high gravity fields have declined only slightly or not at all. Thus the percentage of Oklahoma production that will benefit by increases in price of higher grade oil is larger now than it was in November.

At the time the graded prices went into effect oil grading 39 gravity and over, and commanding at that time $1.80, totaled about 33,000 barrels daily and represented 7.7 per cent of the state's output. At present nearly 49,000 barrels come under that classification and of this amount 47,800 barrels will grade 41 and over, thus getting the maximum price and constituting 11.2 per cent of the daily production of the state.

How New Prices Apply

Based on the state's present production, the new prices will apply to Oklahoma crude about as follows:

47,830	barrels at	2.10
1,125	barrels at	1.90
151,450	barrels at	1.70
58,910	barrels at	1.50
43,050	barrels at	1.35
60,510	barrels at	1.20
49,300	barrels at	1.10
14,820	barrels at	1.00
Total 426,995		

The large amount shown as coming under the $1 specification is explained by the large well recently completed in the Robberson field, Garvin county, where the field average is about 28 gravity. This well, which also caused a considerable increase in the state's total production this week, will probably decline rapidly, leaving the settled amount of this grade of oil somewhat nearer to 9000 barrels daily.

Using the figures shown for each grade of oil with reference to the total for the state, it is seen that the weighted average price for Oklahoma crude under the new schedule is $1.516 per barrel. This compares with a weighted average price of $1.385 on Nov. 22, when grade prices went into effect, which had increased to $1.396 when the new schedule was posted. This increase, of course, was caused by the increasing amount of high gravity and high priced oil and a decline in the production of the state as a whole.

Competition in Tonkawa

It is noteworthy that the Prairie's new price for oil of 41 gravity or over is 10 cents a barrel higher than that posted by Marland for Tonkawa and met by other purchasers in that and other fields. Announcement by the Sinclair company that it was entering Tonkawa with a pipe line immediately preceded announcement of the new prices, and it will go into that field with a posted price 10 cents higher than that now prevailing. No announcement has been made by the Marland company as to what action it will take. With Gulf and Cosden also going into Tonkawa with lines in addition to the six purchasers already taking the oil, a merry battle for its highly desirable crude is in prospect.

Under the new list of prices, Oklahoma's production through the various grades will bring in a total of $647,190 daily an increase of $52,800 a day as compared to revenue derived from the preceding schedule, 35.5 per cent of the state's total grades $1.70, this being the largest amount derived from one grade, while the new maximum of $2.10 covers 11.2 per cent of the total.

Daily Average Production In Kansas And Oklahoma, June And December

Field	December 1922 Average	June 1922 Average	Decline or Increase	Gravity of oil
Allen	405	400	+5	29.5
Bald Hill	5,250	3,900	+ 1,350	35.9
Beggs Dist	13,000	16,300	− 3,300	38.5
Billings, Billings Extension	1,025	1,500	− 475	42.2
Bird Creek, Skiatook				
Flat Rock	6,500	5,500	+ 1,000	31.3
Bixby	1,150	900	+ 250	35.0
Blackwell	2,325	2,300	+ 25	40.8
Boynton	1,100	2,000	− 900	35.5
Broken Arrow—Inola	588	575	+ 13	34.1
Cleveland (T20-21, R. 7-8)	5,900	6,875	− 975	36.9
Continental Pool	28,600	31,000	− 2,400	29.0
Coweta	300	300	0	32.0
Cushing	29,200	31,700	− 2,500	37.5
Deer Creek	225	350	− 125	39.0
Depew	18,000	14,210	+ 3,790	32.0
Garber	7,800	6,000	+ 1,800	45.2
Glenn Pool—Red Fork	11,500	12,000	− 500	35.0
Henryetta	1,580	1,900	− 320	36.3
Jennings	3,950	4,802	− 852	36.7
Kellyville—Bristow	2,900	5,000	− 2,100	29.0
Kingwood	2,150	3,000	− 850	38.5
Lyons	12,000	27,000	−15,000	38.5
Mannford	535	1,000	− 465	33.5
Mervine—Newkirk	900	1,200	− 300	40.1
Morris	1,325	1,200	+ 125	36.0
Mounds	975	900	+ 75	34.0
Muskogee	450	850	− 400	34.3
Okemah	1,525	1,600	− 75	38.0
Osage, Burbank	85,000	70,000	+15,000	38.0
Osage	10,000	10,200	− 200	31.0
Osage	11,500	12,000	− 500	34.0
Osage	13,500	12,000	+ 1,500	35.5
Ponca City	1,170	1,500	− 330	42.0
Slick	11,000	13,000	− 2,000	30.0
Stone Bluff	650	625	+ 25	36.0
Tiger Flats	5,150	6,000	− 850	35.5
Tonkawa	25,600	9,000	+16,600	41.0
Washington, Nowata Counties	13,650	14,000	− 350	31.3
Watchorn	150	.....	+ 150	31.3
Wetumka	500	.....	+ 500	35.0
Yale & Ingalls	12,950	12,393	+ 557	37.5
Sub-Total	**351,978**	**344,980**	**+ 6,998**	
Southern Oklahoma				
Brock	983	900	+ 83	....
Cement	2,778	2,100	+ 678	34.3
Comanche	724	777	− 53	33.5
Duncan	10,852	13,182	− 2,330	35.1
Fox	3,020	3,950	− 930	32.5
Graham	2,325	.....	.....	32.5
Healdton	17,890	19,500	− 1,610	29.
Hewitt	27,200	29,450	− 2,250	33.2
Loco	1,825	1,500	+ 325	under 28.
Robberson	5,700	3,000	+ 2,700	28.0
Walters	1,475	1,820	− 345	28.
Sub-Total	**74,772**	**76,179**	**− 1,407**	
Total Oklahoma	**426,750**	**421,159**	**+ 5,591**	

Kansas

	December Average	June Average	Increase or Decrease	Gravity
Augusta & Douglas	4,680			32.
Eastern Butler Co. & Blankenship & Sallyards	4,830	20,560	− 793	36.9
Fox-Bush	10,257			37.5
Elbing-Peabody	14,200	13,900	+ 300	32.5
El Dorado	17,780	20,640	− 2,860	34.
Florence-Covert	7,520	11,445	− 1,013	32.6
Leon & Weaver	2,912			35.
Greenwood	11,442	12,360	− 918	35.
Kansas, General	13,178	13,500	− 322	31.4
	86,799	**92,405**	**− 5,606**	

North And Central Texas

Field	Average Jan. 1, 1923	Average July 1,1922	Inc. or Dec.	Gravity
Electra	24,081	17,518	+ 6,563	40.4
Burkburnett	24,934	31,964	− 7,030	42.2
Iowa Park	2,471	2,427	+ 44	40.5
Holliday	4,698	2,229	+ 2,469	36.9
Petrolia	298	338	− 40	36.5
Young Co	8,500	9,701	− 1,201	38.7
Jack	85	.....	+ 85	....
Strawn	1,234	1,679	− 445	35.3
Stephens Co	30,445	40,990	−10,545	37.6
Moran	2,711	1,115	+ 1,596	38.7
Ranger	11,579	14,555	− 2,976	42.6
Brown	784	627	+ 157	35.
Coleman	122	87	+ 35	39.1
Eastland	9,462	15,591	− 6,125	37.
Comanche				
Mitchell	275	20	+ 255	25.
	121,679	**138,841**	**−17,162**	

Louisiana And South Arkansas

Field	Jan. 1	July 1	Inc. or Decrease	Gravity
Caddo, Light	8,456	8,240	+ 216	42-45.3*
Caddo, Heavy	2,427	3,598	− 1,171	21-25
Bellevue	4,764	2,796	+ 1,968	19.5
Elm Grove	1,337	1,050	+ 287	31.5
Red River-De Soto	6,120	6,960	− 840	41.
El Dorado, Ark, proper	19,007	33,407	−11,200	35
El Dorado, East Field	3,200			19
Smackover, Ark	95,120	.....	+95,120	19.5*
Stephens, Ark	355	.....	+ 355	30
Homer	11,120	15,120	− 4,000	35.9
Haynesville, La	42,831	55,063	−12,232	35
Total	**194,737**	**126,234**	**+68,503**	

*Approximately 2000 barrels daily from Caddo chalk rock averages 35 gravity.

**Of Smackover production about 3000 barrels daily in Pat Marr pool is 28 gravity

This Week's Oil News Summarized

Production

(Detailed Production News, pages 49-64)

PRICE advances constituted the principal news of the week, overshadowing several other important happenings in field development.

The advance was 10 cents in the Mid-Continent, and this was followed by similar advances in the Illinois, northwest Ohio and Indiana fields and in Wyoming. Eastern crudes were advanced on Tuesday, Jan. 16, this advance including 25 cents on Corning grade and 10 cents on the others.

While production plus imports is at this time more than enough to care for the consumptive demand, it is pointed out by competent observers who have within the past week discussed the situation with **National Petroleum News** that this condition cannot last after the season of greater demand comes. There is published elsewhere in this issue comparative figures on crude production of the Mid-Continent and Southwest which show a decline from July last to Jan. 1, 1923, of approximately eight per cent in the crudes of 35 degrees and better. It is also pointed out that there is no field in this area producing the light grade oil, with the exception of Tonkawa and the Wetumka area, which is capable of greatly increasing its output.

The effect of the price advance, which is believed in the Mid-Continent to be the forerunner of another raise in the near future, will be to stimulate wildcatting in areas adjacent to the light oil pools.

Another factor affecting the situation at this time is the Smackover pool of southern Arkansas. On page 59 of this issue is an article dealing with this area, showing this field is on the down grade. While this is low grade oil, still it is in competition with other oils just as every barrel of oil, wherever produced, is in competition with every other barrel of oil in some degree.

Price Advances In East, Central West And Wyoming

CLEVELAND, O., Jan. 16.—Additional to the price advance posted on Jan. 13 by the Prairie Oil & Gas Co., other price changes were made by purchasing companies as follows:

Ohio Oil Co., effective Jan. 15, advanced the prices of Lima, Indiana, Wooster, Illinois, Princeton, Plymouth and Waterloo crudes 10 cents a barrel.

Effective Jan. 15, the Ohio advanced the prices of Grass Creek, Elk Basin, Big Muddy, Lance Creek, Rock Creek and Mule Creek, Wyo., grades 10 cents and announced the grading of Sunburst, Mont., crude as follows:

Below 28 degrees, 80 cents; 28 to 33.9 degrees, 90 cents; 34 degrees and above, $1.

Midwest Refining advanced grades it buys 10 cents, including Salt Creek.

Effective Jan. 16, Joseph Seep Purchasing Agency advanced the price of Pennsylvania, Cabell, Somerset and Somerset light, 10 cents. Corning was advanced 25 cents.

Effective Jan. 15, Imperial Oil Ltd., advanced Canadian crudes 10 cents.

* * *

TULSA, Jan. 15.—Kay County Gas Co., pipe line and oil buying subsidiary of the Marland Oil Co., posted a new scale of crude prices effective at 11 o'clock a. m., Jan. 13, under which it meets the Prairie prices announced the same day. This constitutes a 10 cent advance by this company for Tonkawa crude, as this company had previously posted a price of $2 for oil of 41 degrees and better.

Magnolia Petroleum Co. also issued new prices, effective Jan. 15, as follows:

Under 28, $.65; 28-30.9, $.75; 31-32.9, $1.20; 33-34.9, $1.35; 35-36.9, $1.50; 37-38.9, $1.70; 39-40.9, $1.90; 41 and over, $2.10.

Under this schedule, Magnolia makes no change in the price of oil below 30.9, thus keeping most of the Healdton crude at its present price of 75 cents. Some Healdton oil comes under the $1.20 quotation. Prairie pays $1, $1.10 and $1.20 for oil of the same gravity as that for which Magnolia pays 65 and 75 cents. Sinclair has not taken any action with regard to meeting the new Magnolia schedule in fields where they both purchase.

How Others Do It—

One authority says the oil marketing business is over-expanded right now.

That means individual businesses have to be run much more efficiently than in the past. Profits will come through cost savings rather than expansion of business.

You—the marketer and dealer—are looking for practical ideas to this end. The experience of other oil companies is your best guide.

Each issue of National Petroleum News has one or more articles telling how other companies are working out their business salvation.

Next week a staff writer tells how one eastern jobbing company, organized within the year, put itself on its feet—what it did and what it decided not to do.

In Jan. 24th Issue

Marketing

(Detailed Marketing News, pages 89-101)

THE refinery markets continued to improve during the last week While the volume of business did not indicate an immediate boom, orders were of sufficient number to make operators feel that they will be assured a good movement of most of their products throughout the early months of this year.

Prices have a firmer tone, and the advances in crude oil indidate that still higher prices are in order for refined goods. Automobile manufacturers predict their 1923 output will break all precedents. This means that the 1923 consumption of gasoline should break all records. Sales at the National Automobile Show in New York last week were reported to be heavy and this show is taken as a barometer of what may be expected for the industry as a whole.

The advance in Mid-Continent crude oil tended to unsettle the refinery market in that district. Some refiners withdrew their quotations until they were able to lgure out just what their revised costs would be. Others advanced their quotations on new Navy ½ cent, making the price 12¼ a gallon, a gain of 2 cents in the last month.

Jobbers are not yet buying in large volume but inquires for considerable quantities are increasing enough to make sales managers have visions of spring trade.

Lubricating oils are more active. Pennsylvania neutrals are stronger and cylinder stocks are moving in good shape. South Texas lubricating trade is showing an improvement.

Fuel oil is stronger and some good sized contracts are being closed. Mid-Continent fuel is up 5 cents a barrel on the spot market because of the advance in crude. Gas oils have been active especially in the east where the supply is limited. Many Independent refiners in Pennsylvania are holding this cut for cracking or selling it to neighboring operators who have cracking plants. Those who are putting this oil on the market, have almost depleted their stocks.

Kerosene has been the weakest of refined products. Buying has been light and some stocks have accumulated. Relief of consequence can hardly be expected until the demand of farmers for the tractors begins in the spring.

Financial

(Detailed Financial News, pages 100-102)

Financial markets held up well last week despite the unsettled international conditions which usually cause more or less depression.

Among the oil shares there were several notable movements. California Petroleum and Cosden rose to new heights for the last three years and the new stock of Atlantic Refining sold at 160, the equivalent of 1600 for the old stock whose highest in 1922 was 1575.

Jobbers Needs Of The Hour Discussed At Michigan State Meeting

JACKSON Mich., Jan. 11.

By Warren C. Platt
STAFF REPRESENTATIVE

APPROVAL by the Interstate Commerce Commission of a rail rate on crude from the Homer Association here Jan. 10th and 11th. Out of a total registration of 111, there were 76 straight Michigan jobbers. The others were mostly station managers for larger companies owning refineries, and refinery, broker and equipment salesmen

They discussed state and national oil problems. They heard a big paper manufacturer dramatically tell of good salesmanship and a penitentiary chaplain talk on men. These elected new officers with H. H. Ragle, general manager of the Federal Petroleum Co., Jackson, succeeding A. J. Callaghan of the American Oil Corp. Jackson as president.

Then they went out to the state penitentiary and got some pointers in managing men and increasing their efficiency under the greatest obstacles, from an ex-building contractor who as warden has put that institution on a highly effcient manufacturing basis. These jobbers went home with their parting words of "a fine meeting", ringing most sincerely. There are meetings and meetings, and the departing guest always says that he has had a good time, but there are times you know he is telling the truth and this was one of them.

A penitentiary visit and a talk from a chaplain may seem rather incongruous for an oil meeting, but up here in Michigan it rather tended to make it seem more like a straight Michigan proposition—all puns about the penitentiary aside. These jobbers met not alone as oil jobbers, as part of a national industry, but also as citizens of Michigan, and as men managing and working for other men and the public at large. It seemed quite fitting for the minister, who happened to be a substitute on the program, to bring every man to thinking about his relation to the less fortunate among his fellow men; then to visit a Michigan institution to which they are contributing as taxpayers and whose product they are liable to be called on to employ some day. The chaplain belligerently demanded of them, as fair-minded men, a square deal for his "congregation" which he said most "Christians" didn't give them.

It all served to warm that meeting up as nothing else could and pointed the talk on unethical practices, an oil man's duty to the public in fire and accident prevention work, and so on for it brought home to all that they are men first and oil men afterward.

It was truly a meeting of men, and they came from Michigan and were of the oil industry.

President Callaghan had kept in touch with the members of his association by mail and many personal calls throughout the year, so his sales letters on the meeting brought them to Jackson even from the far peninsula. They met first at lunch on the 10th in the Otsego hotel, when Mayor Palmer welcomed them and told them what a good president they had.

Col. Roy C. Vandercook, commissioner of the state department of public safety, which manages oil inspection, and the state fire marshall, together with the state's anti-bootlegging society, came down from Lansing to ask the oil men's suggestions on how to run better the divisions of his department pertaining to oil. He said the state police and inspectors, who looked out for oil, were instructed to make themselves as agreeable as possible to the convenience of the oil men and if they didn't he wanted to know it. But none had any criticism to offer.

Cites Accidents

Col. Vandercook said, as head of the state fire marshall's work, that he was somewhat concerned about two oil accidents of recent date, one a fire at a curb pump near a moving picture theater in Grand Rapids, which, so far as he had been unofficially informed, was caused by a customer striking a match to light a cigar and the other where a 10,000 gallon gasoline tank at Detroit had sprung a leak and filled a nearby low spot with gasoline. The latter impressed him as just downright poor management, but the first appealed to him as something the state might well help the oil industry to stop. He wondered if an order, signed by his department, forbidding carrying a light to a gasoline pump or filling an automobile tank while the engine was running, would make it easier for the industry to enforce its own rules against such practices or, he asked, would it be better for the state legislature to pass a law making this a misdemeanor?

After Col. Vandercook left there was considerable discussion, the essence being that the oil men themselves, by constant watchfulness and education of their employes could do as much to curb these practices as any state law. A special committee to co-operate with the state department was authorized and the association's directors named

President Callaghan Advises Sound Business Methods

WE can help each other in many ways. We must look out for over-expansion. Keep cash in the bank in preference to investing in some real-estate that looks good for some service station, when in reality it will only average 30 gallons per day.

"The temptation is too great to put in a service station, here and there, without first checking up in some concrete way, the valuation of the location. I noticed in a circular, some time ago, from the National Petroleum Marketers Association where six pumps were installed with a hauling distance of from two to ten miles and the large gallonage passed through was 32 gallons and the lowest 19 gallons per day, (12 months average).

"I believe the Michigan Independent Oil Men's Association will soon be large enough so we will have a sufficient income from members to employ a field secretary, who will travel throughout the state, calling on the members and discuss with you, individually, your respective problems.

"Sometimes I fear we do not properly run our business, especially from the standpoint of good accounting. We should charge off each month, every one of us, a certain amount of depreciation on all of our "frozen" assets, together with a reasonable reserve for bad accounts, and let this amount, like taxes, insurance, repairs, and other expenses, be included in overhead.

"You only pat yourself on the back if you don't include proper charges against your incomes. If you don't have a profit and loss sheet for market fluctuations, I recommend that all of you start one for January 1, 1923, so you can learn if your profit and loss is on market advances or declines or other operations.

"I ask you in a serious way to run your business on an ethical basis. Discontinue all illegitimate methods if you are employing any. You don't have to stoop to underhanded ways. Come clean and you will build a business that cannot be taken away from you Confidence, integrity, courtesy, quality and service,are the keynotes. Don't try to run your business without the assistance of your associates. It cannot be done no matter how capable you think you are, yourself. Do your planning together. Let your employes have a voice in the management, and you will find that they can run the business better than you can. I know. Our American Oil tank wagon salesmen are, in themselves, a committee of safety. They talk together, send letters to each other, with the result that they have in mind the danger of carelessness in handling gasoline.

"I want every man in the industry to succeed, but for him to succeed he must work hard and employ honest methods and full measure and I would point out to you that let one Independent oil man be guilty of a dishonest act and the whole industry will suffer.

If our income were large enough, a field secretary could discuss with you cost accounting, purchasing, marketing problems, equipment, methods, elimination of waste, credits, insurance, advertising, expansion, and so on.

"I would ask the Michigan Independent Oil Men's Association, at all times let us show our appreciation to the public of the privilege which is ours in serving them. Let every thought, word and action reflect nothing but that which is good."

jobbers applauded for more encores than "Van" seemed to have on his music rack.

Take in the Movies

The meeting adjourned after dinner to a movie theater, where two special oil films, as well as the regular films of the evening, were shown. One oil film showed transportation conditions in the field and followed the efforts of a small car in plowing through mud, sand and creeks in the Louisiana fields. The other was the film made by the North American Car Co. of the jobbers attending the meetings of the national association at Denver in 1920 and at Chicago in 1921.

Thursday morning H. H. Ragle, general manager of the Federal Petroleum Co., of Jackson, talked in parable of "Competitive Evils." made a king of "Common Sense", a prince of "Success" and gave him six sons, "Industry, Integrity, Knowled--- Initiative, Power and Inspiration" and tied it to the oil business by likening "Failure" to the jobber who cuts prices, cuts his quality, gives credit to every one and otherwise uses unbusinesslike methods.

H. R. Swarthout, of the Sun Oil Co. of Detroit, argued for the necessity of curb pumps as outlets for the Independent jobber. He said the jobbers would have to guard them against foolish legislation, as had been the case at Toledo. There a proposed ordinance to move them from the curb in certain sections of the city was defeated Jan. 9th after quite a fight. The attack on the pumps was based on their alleged fire hazard and delay of traffic. The oil men argued that to drive them off the curb would put them inside garages, where the handling of the gasoline would create a greater hazard and that, as parking was permitted on these same streets, the three-minute halt of a car at a curb pump could hardly be said to impede traffic.

To bar the pump, Mr. Swarthout said would, either force the jobber out of business or force him to put in service stations at a big expense. He observed that in Detroit, for illustration, the baring of pumps on a certain street happened to be the street on which one big oil company had six service stations which were unmolested. Another big oil company he said had just bought a twelve-family apart--t house which it was tearing down for a filling station site.

The association voted approval of a resolution on behalf of the safety of curb pumps and their desirability, as adopted at the last annual meeting of the National Fire Protection Association.

Against Gasoline Taxes

Horatio S. Earle, former head of the Michigan state highway department and now a Detroit manufacturer with a penchant for public service, continued his fight against a state gasoline tax before the jobber's association. He offered a new argument, based upon the fundamental proposition that taxes should bear equally on all, that if gasoline were singled out for a tax, some other commodity would next be, until eventually all state activities might be supported by special taxes which only bore on a small percentage of the public. A gasoline tax, he said, did not bear as heavily on Henry Ford and his millions as it did on the least of his employes, because the two cents a gallon proposed tax was a much smaller part of Ford's wealth than of his employes'. He said for this the tax fell on the city car owners who used the country roads the least and he stated that 90 per cent of all Detroit automobiles did 90 per cent of their driving on Detroit streets, and that 75 per cent of all truck hauling in the state was on city pavements. Autos in Michigan are now paying a 5 per cent tax and, if the gasoline tax is levied, they will pay 8 per cent while other property only pays 3 per cent. He urged a mill tax on all property for good roads improvement. The association voted approval of his plan. Reports from Lansing are, however, that the chances of defeating a gasoline tax are slim. The state budget commission recomended it, the state grange did also and it is understood the governor and most of the legislators favor it. The Detroit delegation are the chief ones fighting it.

Frank B. Francis, Hancock, Mich., moved that the Nicholas advertising campaign be approved and that all members who could make application join it. The motion passed unanimously.

At the election of officers, President Callaghan placed Mr. Ragle's name in nomination and by unanimous vote he was declared elected president. J. J. Thiesen, St. Joseph, was chosen vice president. William C. Vandenberg, Holland was made treasurer, Paul R. Kempf, Saline, was elected secretary. New directors are H. C. Gullette, American Oil Corp., Jackson, Fred Staebler, Ann Arbor, and Charles R. Rath, Lincoln Oil Co., Detroit. These with the officers and Harry Harris, Cadillac, P. F. Fineis, Lowell, and A. J. Callaghan, who held over, constitute the board.

Refinery Future In Mid-Continent Rests With Carriers, Lawrence Says

Staff Special

TULSA, Jan. 11.—Future existence of the refining industry in the Mid-Continent is threatened by reason of present freight rates, J. F. Lawrence, traffic counsel for the Western Petroleum Refiners Association, told 75 railroad freight representatives who were guests of oil traffic managers of Tulsa at a banquet at the Hotel Tulsa here tonight.

The territory north of the Ohio and Potomac rivers and east of the Mississippi consumes half of all the oil used in the United States, although it embraces but one-eighth of the country, he said. The state of Ohio alone consumes more petroleum products every year than eight states on the west banks of the Mississippi.

Mr. Lawrence pointed out that the Mid-Continent is gradually being shut out of the great consuming territory of the northeast because of freight rates. From producing 24 per cent of the refined products of the company the Mid-Continent has been reduced to 18 per cent and at the present rate of reduction the refining industry will be dead in 1930, he declared.

The continued decline of the Mid-Continent as a refining center was charged directly to the railroads by Mr. Lawrence in his talk to the freight representatives of 59 major railroads who were present. He asserted that failure of the carriers to make suitable rates had forced construction of the major pipe lines to the north and east. The mistake was made first when the Glenn pool was brought in in 1907 and later when the great Cushing pool was developed in 1914.

Railroads would be receiving an additional revenue of a half million dollars every day if they were receiving the oil tonnage they should. Although he declared it to be too late to recover all this business, Mr. Lawrence asserted that a proper freight rate structure would retrieve at least half the tonnage lost.

The three most successful business men of the present generation have been Henry Ford, William Wrigley and Woolworth according to the statement made by Mr. Lawrence. They were the most successful because they reduced the price of their respective commodities and increased their turn-over. He indicated that the railroads could achieve more success by following the same policy.

Lawrence stressed the necessity of the railroads and their prosperity to the general prosperity of the country. He asserted that the oil industry was seeking to co-operate with the carriers and not to tear them down. As his closing thought he proposed that the following slogan be adopted: "Day by day in every way we are working closer and closer together."

D. E. Buchanan, sales manager for the Chestnut & Smith Corp., who acted as toastmaster, had the entire gathering of railroad men and oil traffic managers stand and repeat the slogan in unison.

E. R. Perry, vice president of Cosden & Co., made a short talk. He presented the same idea, that the Independent refining industry must have more advantageous rates into the principal consuming territories if it is to succeed.

W. A. MacGowan, of the Lake Erie and Western Railroad Co., Kansas City, responded on behalf of the freight representatives of the carriers. He asserted that one great railroad which handled 1,800,000 loaded cars during the past year found that 267,000 loads were oil although the road did not touch the producing territory.

Entertainment was provided by a number of vaudeville acts between courses of the banquet.

Hosts of the evening were: C. F. Dowd, Tidal Refining Co.; F. E. Burke, Chesnut & Smith Corp.; A. E. Holmes, Empire Refineries, Inc.; H. W. Roe, Cosden & Co.; R. E. Stewart, Barnsdall Refining Co.; E. W. Wycoff, Highway Oil Refining Corp.; G. A. Rabun, Waite Phillips Co.; A. G. Briggs, Transcontinental Oil Co.; C. W. Miller, Sapulpa Refining Co.; J. P. Duffy, Constantin Refining Co.; D. F. McCarthy, Producers & Refiners Corp.; Wm. J. Schnur, Noble Oil & Gas Co.; C. L. Seideman, Imperial Refining Co.; H. E. Waterman, Pure Oil Co.; R. E. Downing, Crosbie & Gillespie; and R. C. Culter, Oklahoma P. & R. Corp.

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Midwest Refining And Standard Of Ohio Probed By Senate Committee

Staff Special
WASHINGTON, Jan. 15

THE first Independents to be questioned by the LaFollette investigating committee in its examination of the oil business were placed on the witness stand yesterday. They were L. V. Nicholas, president of the National Petroleum Marketers Association, and W. H. Gray, of Tulsa, president of the National Independent Oil Producers' Association.

Both were bitter in denouncing the Standard companies both from the standpoint of the producer and the marketer.

"There are no real Independents in the oil industry," Nicholas declared, after stating that his organization is the fighting unit in the industry, the object of which is to create a real Independent section. He said the lack of independence is due to the control of the pipe lines chiefly by the Standard interests.

"If we start real competition based on cheaper delivery costs we are up against a system of reprisals which discourages more than one trial," said Nicholas. When asked if the Standard controls prices, Nicholas emphatically declared: "It certainly does, ours as well as its own."

Declaring that over-development constitutes the greatest handicap to the industry and to the public, Mr. Nicholas said:

"The over-development is almost incredible. I believe that if not another filling station were established for the next ten years the industry could take care of the business even if the increase in automobiles amounted to 10 per cent per annum." He said the Independents had borne the heavy burden of unscrupulous promoters both in the refining and marketing business. The Standard interests, he said, remained united as a group in the picture while the Independents were mere disconnected dots in it. He overlooked the numerous fights over freight rates and other matters in which various Standard companies have taken opposing sides and have bitterly fought each other to maintain their position.

Senator Brookhart, one of the members of the committee, apparently greatly enjoyed Nicholas' testimony. He asked the witness if the Standard did not maintain "trouble companies" to get busy in areas in which the Independents showed troublesome activity and if the Prairie Oil & Gas Co. was not one of them. Nicholas said that the Standard had done that in former days but he did not think it was done now to the same extent as formerly.

Senator Brookhart wanted to know what would happen in Iowa if any Independent lowered prices. Mr. Nicholas said the first step would be remonstrance and effort to restore the prices.

"If the Standard were made to realize the Independents meant business by basing prices on costs, the Standard would change its policy," the witness said. He believed the only cure for the situation would be reduction in prices but that the Independent organization is not strong enough to do it.

"The Standard is essentially an organization of business men and we Independents have made it pretty easy for them to scare and control us," said Mr. Nicholas. Senator Brookhart wanted to know how the scaring was done.

"They put the price down to a point where lots of times we have sold our goods from 1 to 1½ cents less than they actually cost us to make delivery. At such times we have been convinced the situation was created by manipulation of the buying powers of the Standard," was the reply. Mr. Nicholas went into the effort of the Independents last summer to advance prices just about the time the investigation started.

"We fought for the advances that we as jobbers needed but we did not succeed," said the witness. "The Independent refiners awoke to the fact that the Sinclair was furnishing gasoline for Independent jobbers at a margin between 3 and 4 cents and that the Standard was supplying the gasoline with which the Independents were being cared for. The gasoline had been bought from Independent refiners.

Mr. Nicholas said the committee could get full data from the Independents if they felt they could be protected.

"In other words," observed Senator Brookhart, "before we get the actual truth about this we have got to make the United States government bigger than the Standard.

"In a way," replied Mr. Nicholas, who hastened to add that the Standard was only doing what everybody else was doing. He said the average Independent would be slow to reduce prices.

"The public is not going to support a myriad of Independents if they are simply going to be channels through which the Standard might do business. Some Independents are merely hypodermic methods by which the Standard gets its products to the public without the public knowing such products to be the Standard's.

Another witness from the Independent jobbing industry was Albert S. Matthews, president of the Pennzoil Co. with filling stations in 38 New York towns competing with the Standard of New York. He said the Standard practice of leasing pumps was hard on the small company because the latter could not buy the pumps as cheaply as the Standard companies.

W. H. Gray complained of the maintenance of the 100,000 barrel minimum for tenders by the pipe line companies, apparently overlooking the fact that the minimum has been reduced to 10,000 barrels by the Interstate Commerce Commission. He said the pipe line companies should be required to take any amount of oil, no matter how small. He said competition is rapidly disappearing. He asserted the Standard through control of pipe lines and through operation of discriminatory freight rates, is able to fix prices without conferences or any other form of violation of the anti-trust laws.

He expressed the opinion that the peak of American production was reached last year that most Independents opposed any drilling on the navy oil reserves and that a combination of Standard of Indiana and the Gulf, if it occurs, would be disastrous.

He criticized the Bureau of Mines figures as to gasoline storage because they do not take into account the gasoline content of the stored crude. He advocated the creation of a bureau akin to the census bureau to gather statistics of production, consumption and stocks of crude and refined products, with power (which the courts have said congress cannot confer) to require figures about costs of production, of transportation by pipe lines and of refining. He also favored a high tariff on crude and a revision of pipe line rates by the Interstate Commerce Commission which has not been asked by any Independent to do a thing about rates although it has been nine years waiting for complaints.

The Midwest Refining Co. and the Standard Oil Co. of Ohio were under the searchlight of the LaFollette investigating committee this week, after J. C. Donnell, president of the Ohio Oil Co., was excused from the witness stand Monday. Mr. Donnell was recalled to the stand Tuesday morning to give further testimony as to the general crude oil situation in Wyoming, which, it appears likely, will be used when the committee investigates the Sinclair interests in connection with the lease of the Teapot Dome naval reserve to the Mammoth Oil Co.

The significant question was asked Mr. Donnell, "Is there an advantage in keeping the crude oil in the ground in Wyoming?" He replied:

"Decidedly, because of tankage costs, as I know from long experience. The desirability of keeping oil in the ground until it is needed is greater in the Wyoming fields than anywhere else. "He said the Ohio Oil Co. has wells about a mile north of the north line of Teapot Dome and south of the south line of the Salt Creek field. He testified that he had drilled wells most everywhere except in California and that at one time or another has drilled operated or controlled 42.000 wells."

He said tankage erected in Wyoming costs about a third more than anywhere else, the cost running to 40 or 50 cents a barrel and, because the tankage is planned on the basis of flush production, the tanks

HERE'S what may happen, as doped out by a couple of oil men who sat, fidgeting as they waited their turn to step up to face the audience, composed of LaFollette and Roe — Senator Brookhart was absent last week:

LaFollette and his colleagues will get the oil industry put under government control and it will languish as the railroads have done. Then the automobile designers will change their engines to operate on alcohol.

There will be a mad rush into the business of manufacturing alcohol for motor fuel.

This will eventually bring an overproduction of alcohol—more than the automobiles can use.

Then they will have to repeal the prohibition amendment and let us drink up the excess alcohol.

have to be moved frequently when the salvage is only 4 or 5 cents a barrel.

"There has been an awful lot of money spent in Wyoming and Montana." he said. "Geologists have recommended 250 structures, which have been tested at great expense and only 40 produced oil, only three or four of these in paying quantities. The witness said probably $20,000,000 had been lost in Wyoming, adding, "I lost a damn good lot of it myself."

When Mr. Donnell was finally excused H. M. Blackmer, chairman of the board of the Midwest Refining Co. took the stand. Questioned concerning the merger in 1920 of the Midwest with the Standard Oil Co. of Indiana, Mr. Blackmer said he favored the merger as advantageous to both companies and had personally urged all the stockholders of the Midwest with whom he was acquainted to turn in their stock.

He said the deal was advantageous for the Midwest, because, during the war, the Midwest refineries had been overbuilt to supply the demands of the armies and, with the coming of peace time, found itself with large production of crude and a refining capacity larger than the market in which it could sell its products.

"We had no marketing facilities and I did not know where to raise the money to organize them" said the witness.

Also, he said, the amalgamation enabled the Midwest to distribute the hazards of the business over the entire marketing territory of the standard of Indiana, instead of having them all concentrated in the Rocky Mountain field—putting all its eggs in one small basket, so to speak.

Mutally Advantageous

The deal was advantageous from the standpoint of the Standard of Indiana, he said, because it has developed a large marketing territory and extensive marketing organization and facilities, and needed products to supply the market it had built up. But before the merger, the Midwest had a five-year contract with the Standard of Indiana to furnish gasoline.

Mr. Blackmer testified that, on April 29, 1919, a contract was signed between the Indiana company and the Midwest whereby the latter was to sell the former a minimum of 1,500,000 50-gallon barrels of gasoline each year for five years, beginning June 16, 1920, and ending June 16, 1925. The maximum the Standard might take was one third the output of all the Midwest plants.

The price for the gasoline, according to the contract, was to be 6½ cents under the Chicago tank wagon market. When the freight rate went up, a change was made in the price, by mutual consent of the two companies, by widening the spread to 7½ cents under the Chicago market. That is the price at present in force, Mr. Blackmer said, the price to the Standard of Indiana now being 10½ cents. He said the freight rate from Casper to Chicago is 51 cents a hundred, or 3.37 cents a gallon.

In reply to questions, Mr. Blackmer stated that in 1921 the sales of gasoline of the Midwest plants was 131,552,159 gallons, of which the Standard of Indiana took 82,340,064 gallons. The other customers of the Midwest during that time, he said, were the Continental Oil Co., The Texas Co., Sinclair Refining Co., Standard of Nebraska, Imperial Oil, Ltd., (Canada) and the Standard of California.

Total sales from the Midwest plants the first six months of 1922, he said, were 86,078,297 gallons, of which the Standard of Indiana took 65,918,663 gallons.

The witness stated that the average refinery price during November of stuff moving from Midwest plants into Colorado and other Rocky Mountain territory except Montana, was 9½ cents a gallon and of that shipped to Nebraska, 12½ cents. The price in November of gasoline shipped into Montana for the Continental Oil Co., from the Midwest's Greybull refinery, he said, was 11½ cents a gallon.

He testified the capacity of the Midwest refinery at Casper is 50,000 barrels a day, at Laramie, 5,000 and at Greybull, 20,000 barrels.

Lost Money On This Contract

The witness was questioned concerning the contract the Midwest had with the U. S. Shipping board to furnish fuel oil for the navy on the Pacific coast in return for the board's royalty oil in the Salt Creek field. Mr. Blackmer said that the Midwest lost money on this contract because he took the crude at the posted price and had to buy fuel oil on the Pacific coast from the Standard of California to furnish the shipping board. He was obliged, practically to trade gasoline to the Standard of California to get the fuel oil and the latter was bought on a basis ranging from $1.40 to $2 a barrel.

Mr. Blackmer testified that the contract with the shipping board terminated in December, when the shipping board asked for bids on the royalty oil, deciding to sell it for cash instead of taking payment in kind. Asked whether the oil was awarded on a basis of open bidding, he said it was so far as he knew. He said his company had bid for it but that it had been awarded to the Sinclair interests. The Midwest is now taking 70,000 barrels of oil a day from the Salt Creek field, about 55 per cent of which is produced on contract, he said.

Gilbert E. Roe, counsel for the committee, who conducts the examination, sought to establish that there was an understanding between the Midwest and the Ohio Oil Co. concerning the posted price of crude. He took the statement of Mr. Donnell, who was on the stand the previous day, that he had talked over with Mr. Blackmer the price of oil.

Mr. Blackmer stated that he and Mr. Donnell often talked over prices. Mr. Donnell would at times ask him for an increase in the price the Midwest paid the Ohio for oil and that, if circumstances were right, an increase was agreed upon. When an increase was made Mr. Donnell caused the Ohio Oil Co. to post a higher

Get Your Seats For Next Inquisition; This Time It Will Be On Teapot Dome

Staff Special

WASHINGTON, Jan. 12.—Investigating the oil industry is gaining ground as one of the leading winter sports at the national capital. One investigation has been going on for a couple of months now and another is about to break out. It may not begin until after Senator LaFollette's is finished and then again, it may start while his is still on, thus expanding the present "wagon show" performance into a regular two-ring circus. Two performances going on at one and the same time.

The forthcoming investigation will be conducted either by the committee on public lands of the senate or by a subcommittee of it. Senator Reed Smoot of Utah is chairman of the public lands committee.

The subject of the second quiz will be the leasing of the Teapot Dome naval reserve to the Mammoth Oil Co.

The object, apparently, will be to discredit Secretary Fall.

The investigation has already been authorized by a senate resolution and only awaits the completion of arrangements. Last Wednesday, the public lands committee held a meeting at which there was some discussion as to whether the quiz should be carried out by the full committee or a sub-committee. It was decided that the most important thing to be determined was whether or not the Salt Creek wells actually were draining the oil from Teapot Dome.

To do this, geologists must be employed. Several geologists employed by private companies have already reported on this question—both ways. The committee decided to employ two geologists.

It was decided to hold a meeting next Wednesday to decide on the personnel of the inquisitorial committee. Each member was requested to be prepared to present at the meeting the name of his favorite geologist as a candidate for the job of finding out whether Salt Creek is draining Teapot Dome.

It is likely that two geologists will be appointed at that meeting and sent out to find out.

Senator Walsh of Montana, a Democratic member of the public lands committee and with Senator Kendrick of Wyoming one of the moving spirits in promoting the investigation, says that the three reasons given by Secretary Fall for his action in making the contract with Sinclair will be gone into in detail. These are:

1—That the navy was losing oil through the draining of Teapot Dome by the Salt Creek wells.

2—That the Rocky Mountain fields were controlled by the Standard of Indiana through the Midwest and that it was desirable to establish competition there.

3—That claimants to leases in Teapot Dome under the placer mining law were prosecuting their claims and that it was advantageous for the government to turn the whole thing over to the Mammoth, which had acquired all these claims.

"The investigation will determine chiefly whether Secretary Fall acted with good judgment in leasing the reserve for development and second, whether real competition was established by awarding the contract to Sinclair interests", said Senator Walsh.

"If it is found that the secretary used bad judgment will an attempt be made to cancel or annul the contract?" the senator was asked.

"If it is simply a case of bad judgment, no, but if the secretary was imposed upon, it is possible the contract may be set aside," he replied.

Senator LaFollette is going to put Harry F. Sinclair on the stand himself during this week and perhaps he may scoop the public lands committee and find out a lot about Teapot Dome himself.

price to the producers from whom it purchased oil.

Mr. Roe apparently failed to understand that the relations of Mr. Donnell and Mr. Blackmer as regards crude oil were those of seller and buyer and that they are not competing buyers for crude. The price Mr. Donnell is able to pay producers to whose wells he is connected depends upon the price he can get from the Midwest for the oil which he in turn sells that company.

Mr. Blackmer said the company has recently increased its holdings in the stock of the Utah Oil Refining Co. by 100,000 shares and that it now owns 70 per cent of the stock of that company. Also, it has recently acquired additional stock in the Mountain Producers Co. He also mentioned the sale of the controlling interest in the Merritt Oil Co. to the Hamilton Oil Co. which in turn is to be taken over by the Mutual Oil Co. This deal is described on another page of this issue.

Defends Pump Leasing

A strong defense of the leasing of curb pumps and tanks was offered by A. P. Coombe, president of the Standard Oil Co. of Ohio, when he was called to the witness stand following the testimony of Mr. Blackmer. Mr. Coombe had testified that his company has about 2500 pumps leased in Ohio, in addition to 300 bulk stations and 410 filling stations. The pumps, which Mr. Coombe said cost his company from $150 to $200 apiece, are leased to the garageman or other distributor on the customary basis of $1 a year.

"Isn't this great number of pumps, in addition to the regular drive-in service stations, an unnecessary burden on the industry that the public has to pay for?" inquired Mr. Roe.

"I think the curb pumps are useful to the public and a natural development of the oil industry", replied Mr. Coombe. "I think the oil industry is to be commended for eliminating expensive containers and at the same time increasing the public safety. I have given a great amount of study to the marketing of gasoline and I know that its distribution through pumps is far more economical and far safer than through containers.

"A merchant of any kind should be assured of ability to market his product. The gasoline merchant is assured of such ability through the leased pump, saving him from having to make a heavy investment in equipment. If pumps were not leased on such terms, some other arrangement would have to be made to enable the seller to distribute his goods to the public."

Standard's Percentage Dropping

That competition is keen in Ohio and getting keener was stated by Mr. Coombe. He said he has more than 200 active competitors in the state and that, against his 300 bulk stations, his competitors have between 75 and 400 and against his 410 service stations competitors have more than 1000 and the number is rapidly increasing. Mr. Coombe stated that, according to the best estimate he can make, the Standard of Ohio has only about one third of the business of the state and the percentage is constantly getting less. The Standard's percentage of the business is not more than half of what is was 10 years ago, he stated.

"I will soon be only a small fish in the puddle", the witness said.

The Standard has about 775 tank wagons and trucks in service, while the other companies in the state have between 900 and 1000 vehicles. Mr. Coombe stated that his company was always glad to sell to the jobber, either in tank wagons or tank cars and that he is selling many of them now. Illustrating further his point of keen competition in the state he said that on June , 1922, of 200 competitors, 139 were selling below the tank wagon price of the Standard.

Mr. Roe did not bring out the fact, however, that these price-cutting jobbers were local in their operation, some of them operating only in one town and that therefore, the situation was not as it might appear, that a preponderance of the gallonage in the state was being sold below the price the Standard was charging.

GILBERT E. ROE, conducting the examination, occasionally indulges in a little joking match with witnesses. Sometimes these jokes get into the record.

The other day he said to the shorthand reporter, who had chased a fountain pen across several quarter sections of paper since the hearing began, "When I make a joke, you need not put that in record."

The hurrying reporter did not even look up.

"Just point out, please, which are the jokes," he said.

When Mr. Roe led the witness into the subject of costs and prices, Mr. Coombe said his cost is figured on the cost of manufacturing and the buying price. He says his company buys much gasoline in addition to what it manufactures and that it "buys everywhere." The basic cost of gasoline, Mr. Coombe told the committee, is figured on the basis of Group 3. That is, gasoline on the day he was testifying was selling at 10½ cents f. o. b. refinery Group 3. Freight to Ohio points is 3.7 cents a gallon, bringing the tank car delivery price at the bulk station to 14.20 cents a gallon. Mr. Coombe figured the marketing cost, including delivering the gasoline by tank truck into the jobbers tank, at 4.5 cents a gallon, bringing the delivered cost of the gasoline to 18,7 cents a gallon and the tank wagon price is 19 cents. Mr. Coombe said that the marketing cost in winter, when roads and weather are bad, frequently reached 5 cents a gallon if it did not go above that figure.

Mr. Coombe said the Standard of Ohio had no subsidiaries. The company, he said, had 4500 employes and operated its plants continuously by means of three eight-hour shifts. The clerical force, however, does not work continuously. In some branches of the business he regretted to say, a seven day week prevails. He said he had tried to run on the six per week basis, but competitors kept open on Sundays and he had to go back to the seven-day basis.

The Standard of Ohio, he said in answer to a question by Roe, was not the original Standard Oil Co. although it was organized in 1870. The Atlantic Refining Co., he said, was older than the Ohio Standard.

Goes Into History

In 1872, the witness said, the capital of the company was increased to $2,500,000 and to $3,500,000 in 1875, at which figure it stood until 1916. In that year the stock dividend of $3,500,000 doubled the capitalization. Four years later $7,000,000 of preferred stock was issued for cash and $7,000,000 of common authorized but not issued. Last week a stock dividend of $7,000,000 of common stock was paid, so that now the authorized and issued capitalization is $21,000,000.

Before the dissolution decree was made by the Supreme court, the Standard of Ohio, the witness said, paid cash dividends to the Standard of New Jersey ranging from 5 to 37 per cent for the years from 1901 to 1910. The total of dividend payments was $5,924,829 or 171 per cent. After the dissolution the dividends ranged from 5 to 24 per cent, the total disbursements being $10,237,500 on common and $1,337,940 on preferred. The stock dividends amounted to $10,500,000 in the years 1912 to 1922, both inclusive.

Mr. Coombe testified that his company uses the Burton cracking process under license from the Standard of Indiana and that the terms of the license are the same as those offered the western refiners, four-tenths of a cent a gallon royalty on stock charged through the stills, or 16 2/3 cents a barrel.

In the Standard of Ohio contract, however, no provision is made that the Standard of Indiana can hold a string on half of the product of the stills. Mr. Coombe said that he regarded the flat rate royalty as preferable to the 25 per cent of the net profits arrangement as being more workable. He doubted whether the net profits accruing from the Burton stills alone could be satisfactorily computed. He stated that the company has 40 Burton stills at its Cleveland No. 1 plant and 60 at its new Toledo plant. He estimated the cost of installing a Burton plant at around $40,000 per still, varying with varying prices of materials and labor.

Atlantic Refining Takes Stand

W. M. Irish, vice-president of the Atlantic Refining Co., was called to the stand Friday afternoon following Mr. Coombe. The early part of the questioning was taken up with questioning concerning the subsidiary and allied companies of the Atlantic. Mr. Irish testified that a new marketing company has just recently been formed under the name of the Atlantic Refining Co. of Brazil, to operate a marketing business in that country. Other subsidiaries are; The Superior Oil Corp., Lexington, Ky., which produces oil in Kentucky fields; Atlantic Lobos Oil Co., which produces oil in Mexico; Societe de la Maillary, a French marketing company; Gulf Coast Oil Corp., which produces oil in the Gulf Coast fields and the Atlantic Oil Producing Co. which produces crude in Kentucky, Oklahoma, Kansas, Texas, Louisiana and is operating in Arkansas, having no production in that state at present. He said the average daily production for the last named company for the 11 months ending Nov. 30, 1922, was 5179 barrels. This production was divided as follows: Texas, 3582 barrels; Oklahoma and Kansas, 828 barrels; Kentucky, 208 barrels; Louisiana, 112 barels.

The Atlantic Refining Co. owns eight tank steamers with a deadweight tonnage of 79,000. The company was chartered in 1870 under the laws of Pennsylvania and up to 1911, the time of the dissolution, had paid $64,000,000 in dividends. From the dissolution to 1914 no dividends were paid.

Pumping Jack Of Special Design Saves "Standardizing" Rotary Rig

HOUSTON, Jan. 12.

By R. M. Winsborough
STAFF REPRESENTATIVE

A MACHINE which will eliminate the delay and expense incident to putting a rotary-drilled well on a pump, has been developed by John R. Suman, assistant manager of the Rio Bravo Oil Co., and is now being marketed by the Lucey Manufacturing Corp. under the name of the Lucey-Suman pumping jack. This equipment is designed to do the identical work of a standard rig; pumping, bailing and pulling rods and tubing. At the same time it eliminates the engine house, belt house, band wheel, bull-wheel, rig irons and belt.

The common practice in completion of a rotary well that must be pumped is to "standardize" the rig. This involves several additions and changes to the layout of a rotary outfit. The drilling engine is moved some feet back from the derrick floor, and installed in a specially built engine house. Between the engine and the derrick floor is installed a band-wheel, usually 10 feet in diameter and carrying a smaller pulley wheel on its side.

A belt is run from the engine pulley around the band wheel, and a crank put on its shaft. From the wrist pin of this crank, a pitman is run up to the end of the walking beam, hooking over it with the well known pitman stirrup. This walking beam rests on the sampson post, and carries the grip-pipe and string of rods. The engine pulls the band wheel, and the crank pumps the walking beam, consequently the rods and pump. A set of bull-wheels in the front of the derrick completes the change-over.

The new development simplifies the matter a great deal. The drilling engine is left in place. A sampson post is erected, with two 6 by 6 inch re-inforcing braces. On top of this a walking beam is set, carrying a cross-arm about half way between its center and one end. The end of the beam is split to hold the grip-pipe as in the ordinary installation . The other end of the beam is fitted to hold a counterweight. The engine drives a standard "1240" chain to a sprocket on the jack. This sprocket is keyed to a shaft carrying a crank on each end. Wrist pins in this crank hold steel pitmans, connected at the top to each end of the cross-arm on the walking beam. The engine drives the sprocket. The crank shaft, through the pitmans, operates the beam, which pumps in the usual manner. The counterweight is attached, and adjusted to balance the weight of the rods and fluid, so that the engine operates against the pump friction only.

For pumping and pulling operations the jack carries a drum and brake, running loose on the crank shaft. A clutch engages the drum, and the tubing line is run on it. The pitmans are connected to the wrist pins by patented clamps permitting quick dismantling of the pumping equipment for "pulling" the rods. The engine and clutch operate in a manner identical with rotary drilling engines, giving to the "rotary man" a piece of equipment with which he is already familiar.

The new jack is designed to give a little higher pumping ratio than the regular installation. An engine with a 30-inch driving pulley, driving a 10-foot band wheel has a 4 to 1 power and speed ratio. This pumping unit has eight teeth on the engine sprocket, and 27 on the drum shaft sprocket, giving a power and speed ratio of 3 1/3 to 1. An engine running at 105 r.p.m. will get the same number of pumping strokes in an hour as an ordinary installation will get from an engine running at 125 r.p.m. The stroke may be varied within wider limits with the new pumping jack than was ordinarily possible with the standard installation. A set of 4½-inch rig irons ordinarily gives a stroke varying from 20 to 44 inches. This new pumping outfit gives a variation from 20 to 48 inches in pumping stroke.

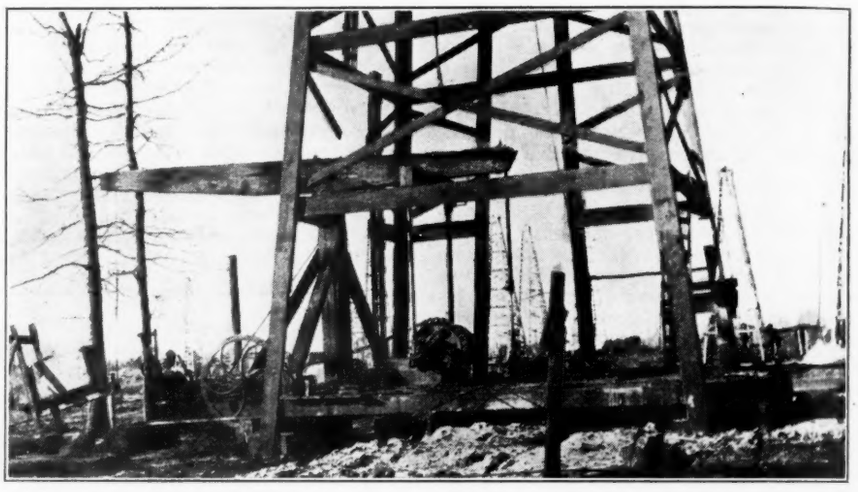
The users of this machine have found several points in which they say it compares favorably with the older types. The first cost is considerably lessened. A complete set of rig irons is eliminated. The labor required, according to average figures prepared by the manufacturers, is reduced from a cost of $300 a rig to $75 a rig. A considerable saving in lumber is also effected, as is easily seen in the elimination of the engine and belt houses.

Usually from four to seven days is required to assemble and erect the materials of a standard rig. This is a delay between completion of a well and available production which is frequently important in fields where outside drilling and offsetting is in progress. The pumping jack described herein may be assembled and installed completely in four or five hours by the labor ordinarily available on a rig.

The chain drive in place of the belt does away with all slipping, and increases the efficiency of the entire assembly. Wet weather will not produce the usual difficulties with the pumping of wells that occurs in the case of belt driven rigs. Replacement of belts is an expensive item that is eliminated.

The higher salvage value of the equipment is another feature highly spoken of by the distributors. A complete standard rig installation, according to average figures prepared by the Lucey Manufacturing Corp., costs $1625. In three years the salvage value of the entire installation will be only $400. At the end of the same time the all-steel pumping jack is estimated to have shown practically no depreciation. Only slight replacements will be necessary to return the outfit to its original efficiency, according to the makers.

A picture of an installation on the properties of the Rio Bravo Oil Co. at Saratoga, Texas, is shown. This installation has been in service for six months, and reports on it have been such as to warrant the claims of the manufacturers.



Installation in Saratoga, Tex., field of Suman-Lucey pumping jack on well of Rio Bravo Oil Co., showing drilling engine in pumping use. Note the elimination of belt house, engine house and bull wheel.

Reach Agreement On Plan To Reorganize Gilliland

TULSA, Jan. 16.—Substantial agreement between creditors and preferred stockholders of the Gilliland Oil Co. on a plan for early reorganization was reached at a meeting held here yesterday. Committees representing both are in conference today, working out final details.

Reorganization cannot be completed until settlement has been made with the government on claims for unpaid income tax which has been pending for some time. Col. P. J. Hurley, one of three receivers, will leave for Washington immediately to attempt settlement of the tax matters.

While no announcement has been made since the meeting, it is understood that the tentative plan of reorganization has been followed, without important changes. The understanding is that Hurley is to be executive head of the reorganized company and that responsible persons have underwritten a bond issue for $4,600,000 of first mortgage, six per cent, six year bonds and that creditors accept bonds in lieu of cash, secured creditors obtaining interest and unsecured creditors waiving interest to date of reorganization. It is understood that preferred stockholders may cancel accrued dividends and waive sinking fund requirements, accepting six per cent cumulative dividends during the life of the bonds and seven per cent thereafter. The underwriters of bonds are to name majority of voting committee to vote stock with common and preferred stockholders having minority representation.

THE EDITORS' VIEWPOINT

His Purpose Becomes Evident

SENATOR LA FOLLETTE'S investigation of the oil business conducted under the guise of senate business, has been going on long enough now and there has been enough publicity carried in the newspapers that cater to doctrines of the La Follette and Brookhart type to show plainly the purpose back of the entire matter. That is regulation of the industry, to put it bluntly. The minds of official Washington used to run toward regulating the coal business as the next step after the railroads in hamstringing industry generally. It is quite likely now that the oil business has moved up into this honored position. Public interest in the oil business is far greater than ever before and the oil industry is not organized to fight attempts at government regulation, as is the coal business, both from the operators' and miners' side.

Thus the oil business is a fertile field, one on which La Follette, Brookhart and others in Washington would give a good deal to get their hands on. It is apparent now that the investigation is not aimed at the Standard Oil group particularly, as some believed when it was started. It is designed to make political capital only in the sense that it offers an opening wedge to force legislation upon congress. Of course, it is one thing for La Follette to make his case against the industry at his own private investigation, with a handpicked group of witnesses and no cross-examination allowed, and something entirely different for that same case to stand up when judged by the members of congress as a whole.

However, the industry should take the investigation seriously and bear in mind that it is directed not against the Standard group; but against the entire oil business. The Independent portion of the industry should insist on being given an opportunity to present its own case before the committee, through the testimony of the heads of the leading Independent companies, and not be content to let its story be set up by the heads of the various Standard Oil companies.

The industry as a whole should see to it that members of congress from oil producing and refining sections acquaint themselves with what is going on in that committee room, where to date only two members of congress have been present except for brief visits. Congress in the past has given La Follette the silent treatment on many of his radical ideas and policies by letting him bark away with only himself to listen until he got tired on that particular issue. Perhaps that is the course of action now. How much voting strength in congress the recently formed radical group can muster on any particular issue remains to be seen. The least that congressmen from the oil states can do is to be entirely familiar with what is going on in the committee room now in the event that it does come up on the floor in congress.

V. B. G.

Geology In Plain Words

A VISITOR discoursing on the merits of a petroleum-finding instrument in which he has a financial interest, remarked that the science of geology has fallen down so hard that oil men generally will turn to "doodlebugs."

It is easy to foresee that a statement made by Dr. A. C. Veatch, one of the best known geologists in the country, before the American Petroleum Institute, that it is now demonstrated that petroleum can be found in any sedimentary bed in any strucural position, will be seized upon as an admission that the geologists don't know what they are talking about. It is nothing of the sort. It is merely a public statement of what any reputable and fair-minded geologist would tell you privately, but which, as a class, they have unfortunately neglected to make clear.

We have noted of late a growing distrust of geologists. This is deplorable, but hardly unexpected. Geology, once it obtained a decent foothold in the oil industry, was hailed by a large number of operators as a phase of sorcery that would cure the evil of dry holes. The geologists are not blameless in this. They failed to keep before the operators the limitations of their science, in language that would be always understood.

Geology is not an exact science. None of its devotees claim it is. The thing for them to do is to keep before the public at all times the fact that their conclusions are not to be taken as final. This will not weaken their position in the slightest—it should strengthen it. There is much the geologist can do to aid the oil producer. Geology has many discoveries to its credit. It also has many failures. The tendency is, however, for geology to reduce the percentage of failure for the operator.

Dr. George Otis Smith, recently director of the U. S. Geological Survey, not long ago gave an address which he called, "A Plea for Plain Geology." He advocated the simplification of language to the point where any man can understand what the geologist is talking about. The geologist will add to his popularity if he will make some statement like this—just so what he ordinarily says will be thoroughly comprehended—whenever he makes a report on any possible oil-bearing territory.

"Conditions are present under which oil is ordinarily found. This means there is a better chance for finding oil or gas than in places where such conditions are not present. All I mean to say is, this structure is worth testing. Geology has done all it can; only the drill can make a positive statement."—L. E. S.

Domestic Burner Is Coming

POPULARIZING the use of oil as fuel for home heating is an accomplishment of this winter. There are several burners which are mechanically and commercially successful. Some are better than others, undoubtedly; but all are in process of development and it is only reasonable to assume they will be improved because a great deal of time and thought are being expended on their development. .

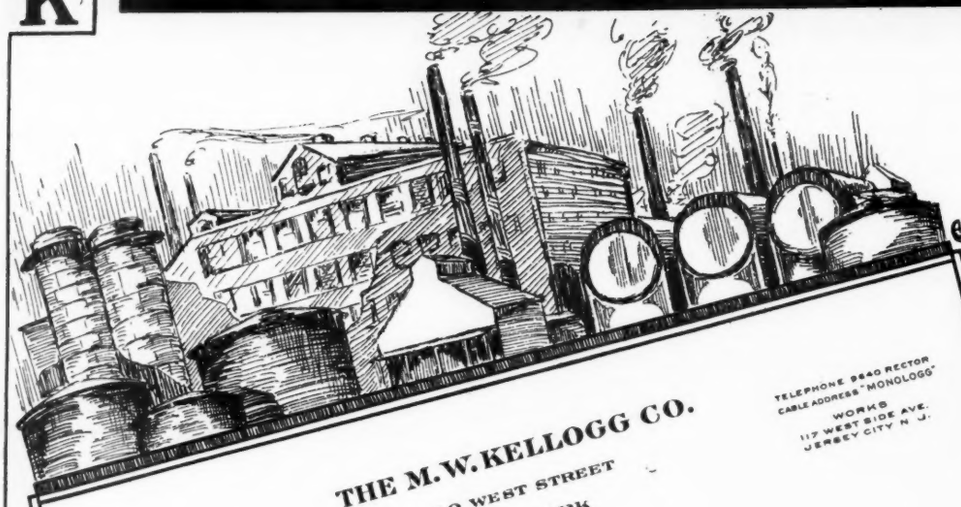
The use of burners is spreading. The public wants them and the prospect list is limited only by the number of homes. Householders are going to ask advice of oil men when they are being assailed by salesmen advocating several different types. The oil man is going to have to supply fuel for whatever burner is finally installed. It is up to him to advocate, not some certain burner, but some certain fuel, in the interest of his own business. He cannot afford to handle two or three different kinds of oil for the same purpose.

It therefore behooves the oil jobber to know the nature of the burners being installed, know the burner agents and the firms making the installations in order that he may early have a list of his prospective consumers. By keeping in touch with these people he can protect his own interests in several ways. He can determine what sort of fuel is going to be most in demand and arrange to carry it in suitable quantity; he can solicit the new business early and at the same time impress the prospect with the advantages of having adequate storage. Later on perhaps he can announce what grade of oil he is carrying which will help the householders select a burner for which fuel is accessible.

By keeping up with the progress of the burner men he can arrive at his own needs in the way of tankage and rolling stock and labor. The smaller the householder's tankage the more service he will require and the more chances he will have to kick at a fluctuating price. Furthermore even if the consumer proposes to burn kerosene, his pipe connections clear down to the burner should be large enough to carry fuel oil, so that, if conditions ever force him to a heavier and cheaper fuel he will not be obliged to tear out his entire installation.—W. K. H.

The unkindest cut of all was to have a newspaper editorial writer compare the work done and salaries received by the heads of the Standard Oil companies with the job of being vice-president of these United States.

K K



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October, 1922

Mr. Refinery Purchasing Agent:

Do you know that the M. W. Kellogg Company can supply you with practically every major unit for your refinery? The M. W. Kellogg Company is the sole manufacturer of the following refinery equipment:

KELLOGG-GRAY WAX MOULDING MACHINES
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Crankcase Oil Dilution Blamed Too Much, Automotive Engineer Says

Staff Special

NEW YORK, Jan 12

DILUTION of crankcase oil as a source of worn bearings and connecting rods and other woes of the motorist, has been considerably overestimated by the automotive engineering world. The present average gasoline sold to the automobile driver is a satisfactory fuel and in fact the present type of engine could operate successfully on a considerably heavier fuel than that generally furnished over the country.

That is what H. M. Crane, noted automobile engineer and chairman of the research committee of the Society of Automotive Engineers told the society at its winter meeting in the Engineering Societies building here yesterday. He expressed that opinion in rendering the report of the research committee on the work done during 1922.

Mr. Crane's opinion was largely based on the results of a series of tests conducted during the summer by the Bureau of Standards under the joint auspices of the automotive engineers and the oil industry, represented by the American Petroleum Institute, which showed mileage obtained with four grades of gasoline from very high grade to a product with an endpoint of around 500 was practically equal under summer driving conditions.

A report on another series of tests made during the summer by 10 automobile companies with 55 cars, using the same grades of fuel as those with which the Bureau of Standards tests were conducted, showed practically the same results. The tests by the automobile companies themselves were considered rather more practical than those conducted by the bureau, for the reason that the company tests more nearly approximated the actuad handling of his car by the average owner-driver. In most cases in the company tests the drivers adjusted their own carburetors to suit their own varying ideas and the results were approximately the same, notwithstanding that the carburetors in the Bureau of Standards tests were scientifically adjusted.

Dilution Blamed Too Much

It was found in both sets of tests that the dilution of the crankcase oil increased as the gasoline used was heavier. However, in connection with the increase of dilution of the crankcase oil through the use of heavier fuel, Mr. Crane said:

"I don't think that from the actual wear shown as a result of crankcase oil dilution, we are ready to go to the mat with the oil industry on the proposition, even that a fuel containing 10 per cent of kerosene would cause dilution sufficient to upset the lubricating system of the present automobile or cause the engine to wear out prematurely. We can't blame all the wear on bearings and connecting rods on dilution of the oil."

Dr. Van H. Manning, director of research of the American Petroleum Institute, who has been the direct representative of the oil industry in the carrying out of the tests on various grades of gasoline, expressed appreciation of the cooperative spirit shown by the automotive engineers and congratulated Mr. Crane, as chairman of the S. A. E. research committee.

Frank A. Howard, of the Standard of New Jersey, in a short talk said that, valuable as is the work that has already been done by the scientists of the two industries, only half of the field has been touched. The other half of the field is the educating of the motoring public on the gasoline situation. Mr. Howard said that it is time to substitute accurate information for prejudice and to proceed in a true scientific spirit of tolerance.

V. H. Gottschalk, research engineer of the S. A. E., described the road tests to determine the efficiency of various grades of motor fuel conducted by the companies and Dr. R. E. Carlson, Bureau of Standards, read to the engineers the report of the tests made by the bureau. This report was read to the oil men at the third annual meeting of the American Petroleum Institute in St. Louis in December and was published in the Dec. 13 issue of **National Petroleum News.**

In describing the manner in which the tests were carried out by the companies to determine the relative mileage obtainable from various grade of gasoline and the mileage and dilution of motor oil, Dr. Gottschalk said:

Plan Of Procedure

"To make results as nearly comparable as possible and to furnish a central office for the collection and correlation of the results, the following general plan of procedure was formulated by the research department in consultation with a number of companies. While each of the individual laboratories was at liberty to modify the plan as desired, as a matter of fact the original schedule was followed closely in nearly all instances.

"The general plan was to operate as large a number of stock cars as practicable successively on four specified grades of fuel, the cars to be driven by their usual drivers, in most cases owner-drivers, in the regular course of service and to secure accurate records of the fuel consumption, the mileage and the oil consumption and of the crankcase dilution when practicable.

"The question of carburetor adjustment which is obviously of primary

Gasoline And Apparent Lubricating Oil Mileages

No. of Car	Miles per Gallon of Gasoline				Apparent Miles per Gallon of Lubricating Oil			
	A	B	C	D	A	B	C	D
1	10.73	9.43	12.77	11.62	570	344	1,490	494
2	9.29	9.88	9.02	8.39	...	...	...	...
3	...	10.18	...	...	...	...	...	...
4	...	...	8.54	8.37	...	...	...	...
5	14.07	10.31	12.83	10.85	...	...	...	...
6	8.00	10.63	8.75	13.66	...	...	...	...
7	10.50	10.81	11.39	11.79	...	...	...	...
8	11.21	...	...	...	...	...	...	...
9	12.19	11.52	11.68	12.08	300	287	347	315
10	11.57	12.00	11.57	12.91	...	...	...	...
11	12.57	12.37	9.66	8.76	622	583	418	671
12	12.53	12.45	12.55	12.70	720	265	756	1,720
13	11.19	12.80	12.34	12.62	535	593	520	1,245
14	13.49	12.92	12.68	12.27	1,781	1,344	1,381	1,600
15	9.19	13.13	8.31	7.94	...	...	...	...
16	14.03	13.29	14.40	14.19	...	...	...	...
17	13.05	13.30	14.10	14.08	287	195	576	334
18	13.78	13.35	13.95	12.50	523	1,236	382	768
19	14.58	13.45	13.76	14.62	1,655	...	2,100	754
20	13.70	13.85	15.05	13.15	366	790	872	1,088
21	12.48	13.90	12.28	14.15	...	633	1,218	598
22	...	...	14.12	...	...	...	...	...
23	14.06	14.13	15.48	15.83	...	...	...	...
24	12.87	14.17	14.42	13.59	263	244	232	214
25	14.34	14.38	15.14	14.05	441	412	446	450
26	12.28	14.58	13.70	12.65	400	407	564	504
27	15.86	14.61	15.70	19.98	...	...	...	...
28	13.90	14.82	14.45	15.00	780	637	1,260	1,320
29	15.02	14.98	16.19	14.79	1,352	1,152	475	1,225
30	15.10	15.15	16.50	16.10	826	793	792	1,168
31	16.85	15.35	16.73	15.35	574	570	735	532
32	15.25	15.38	15.00	17.20	319	2,860	...	1,770
33	15.22	15.45	15.65	14.90	530	248	826	1,060
34	16.50	15.50	15.90	15.72	527	584	740	...
35	14.14	15.54	15.83	17.19	386	525	275	352
36	15.70	16.35	16.83	13.75	419	820	731	710
37	16.29	16.35	15.23	16.00	414	533	528	1,944
38	12.50	16.45	12.27	13.45	533	...	1,211	416
39	14.50	16.48	14.40	...	675	(a)	1,625	...
40	15.75	16.52	14.92	14.90	...	...	...	...
41	14.06	16.58	14.65	14.52	870	3,290	2,099	1,730
42	16.06	16.59	16.40	16.76	...	...	...	...
43	17.42	16.72	17.60	16.59	832	...	1,408	...
44	16.61	...	17.52	17.37	...	...	...	...
45	18.08	17.02	15.38	16.81	...	...	...	...
46	14.13	17.13	14.72	14.19	520	480	537	517
47	18.47	17.24	18.63	15.54	505	776	484	2,539
48	18.18	17.41	17.08	18.01	...	...	...	...
49	18.86	18.37	17.58	18.79	347	269	313	376
50	20.34	18.48	17.94	17.90	374	389	437	990
51	19.90	18.58	17.10	19.15	1,885	2,195	(a)	3,520
52	21.50	19.30	19.68	18.61	872	1,032	(a)	99
53	23.58	19.59	19.41	20.58	566	431	526	343
54	22.04	21.00	21.03	21.78	353	988	622	686
55	16.66	22.48	20.13	16.32	400	438	352	(a)
Average	14.81	14.94	14.70	14.71	648	768	803	910

(a) More oil at the end of the run than at the start.

Cutting Out Waste And Saving Dollars

IN every boiler there is a height at which the feed water level is kept constant so that the fullest efficiency is obtained from the fuel consumed.

If the water level in a boiler can be maintained at its most economical fixed height, without any fluctuation, a great saving in fuel results.

It is impossible to do this by hand because some actual departure from the level must actually have taken place before the fireman is justified in altering his feed.

The Todd Thermofeed is a feed-water regulator which maintains the level within a variation of ⅛ in. (water tube ¼ in.) in any boiler fitted with it.

The Todd Thermofeed is absolutely automatic, simple in operation, it saves its own cost in six months, and continues to effect this economy each subsequent six months without any further maintenance cost.

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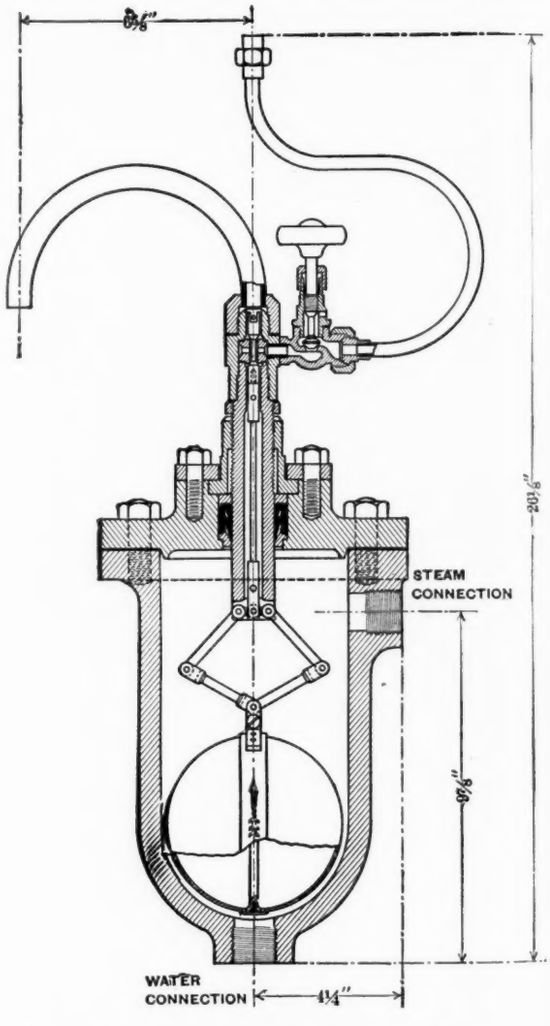


The Todd Thermofeed is a device for the automatic control of water level in boilers, by opening and closing a valve on the feed line as may be required. The water level in the chamber shown above is the same as the water level in the boilers, this level being automatically kept at the desired point by the action of the spherical float shown. When the water level gets too high, the float rises and by the operation of its levers allows steam to pass from the chamber into pipe shown at top of diagram. This throttles the feed water. When the water level gets too low, the reverse happens and the valve on the feed line is opened.

importance, had to be handled differently in different cases because of the divergence of the types of carburetor equipment in the various makes of car. Records of the oil consumption and crankcase dilution were made by some companies and not by others.

"Cars selected for the tests were for the most part owned and driven by officials of the companies, although in a few cases they were test or service cars belonging to the companies. They were selected with a view to being typical of the cars of that particular model in actual use throughout the country. Therefore they received no special overhaul or preparation, except in a few cases where their condition demanded it before starting the tests. These tests involved four weeks of operation without any special attention or adjustment except as to the carburetor for using different fuels.

"The number of cars selected by the different companies varied from four to 12 and represented from one to three different models. The four fuels selected were produced in quantity and distributed at a special price by the Sinclair Refining Co."

The report states that all the gasoline was a straight-run product produced from four different batches of the same crude to insure similarity of chemical composition. The original specifications fixed only the 10 per cent and 90 per cent points of the fuel instead of the initial and end point. The initial and 10 per cent points of the four grades were practically the same to insure the same starting characteristics and the specification of the 90 per cent points is in line with the recent work of Dr. R. E. Wilson, formerly of the Massachusetts, now with the Standard Oil Co. of Indiana, which seems to show that the characteristics of a fuel are determined by the 85 per cent point more accurately than by the end point.

The fuels were labelled A B C and D. With practically the same initial, very little above 100 F., Fuel A had an end point of about 400 F., Fuel B, about F. The cars were divided into groups, 435 F., Fuel C, 460 F. and Fuel D, 500 each group using alternately each of the fuels so that results on all the various types of cars were shown and the tests were run in such a way as to minimize inaccuracy that might arise from weather conditions.

The nine companies cooperating in the tests used 55 cars for 207 separate test periods of one week, averaging 262 miles each. The accompanying table showing gasoline and apparent lubricating oil mileage is taken from the report on the tests by Dr. Gottschalk and the results shown in the table are described in the report as follows:

"The second to fifth columns inclusive of the above table give the figures arranged in order of the increasing mileage with which most closely approximates the average filling-station gasoline.

"The last four columns of the table record all of the figures reported for the apparent oil-consumption and are not corrected for the crankcase-oil dilution.

"The averages at the bottoms of the second to fifth columns of the table are approximately equal, the maximum difference being only 1.6 per cent.

Mutual Gets Big Muddy Production Through Taking Over Merritt Stock

By Paul Truesdell

NEW YORK, Jan. 11.—The importance of the Mutual Oil Co., as a producing, refining and Marketing factor in the Rocky Mountain field will be largely increased by a deal that is now pending by which the company will take over the controlling stock interest in the Merritt Oil Co., a producing company owning large acreage and considerable production in the Big Muddy and other Wyoming fields.

The acquisition of the stock of the Merritt will be accomplished by the taking over by the Mutual of the Hamilton Oil Co., to which the controlling stock of the Merritt, 403,414 shares, is being sold by the Midwest Refining Co., according to the testimony of H. M. Blackmer, chairman of the board of the Midwest before the LaFollette investigating committee.

The capital stock of the Merritt is 780,000 shares with a par value of $10 a share, and the 403,414 shares which the Midwest released to the Hamilton company represents about 52 per cent of the stock.

Acquisition of the Hamilton Oil Co. by the Mutual, with the control of the Merritt stock that goes with it, will put the Mutual in very good position as to crude supply for its Glenrock refinery.

The principal holdings of the Merritt consist of about 3000 acres in the Big Muddy field, which is located about two and a half miles from the Glenrock refinery. On the Merritt acreage at present there are 96 wells producing from the first Wall Creek sand and about 50 producing from the Shannon sand, which are regarded as of less importance than the Wall Creek sand producers. The present production from the Merritt wells is about 3000 barrels a day, but it is understood that the present wells, if shot, could be made to yield as much as 5000 barrels a day.

The executives of the Mutual are sending out a letter to the stockholders of the Merritt organization offering to take in one and three-eighths shares of Merritt stock for one share of Mutual. In this letter it is stated that the Mutual has a daily net production at present of 14,000 barrels a day and a potential production of over 25,000 barrels.

It also states that the company owns proven acreage of 7000 with 300 undrilled locations in the Cat Creek, Mont., field and in the Salt Creek, Elk Basin, Grass Creek, Hamilton Dome, Rock River and Big Muddy fields of Wyoming. In addition the company has acreage in the Texhoma, Bunger, Orange, Burkburnett and Mexia fields of Texas, the Pine Island field of Louisiana, in the Tulsa district of Oklahoma and undeveloped acreage in Kansas and Colorado. The company's refining capacity is given as 10,000 barrels a day, its refineries being at Glenrock and Cowley, Wyo., and Chanute, Kans.

The company also owns a grease plant at Kansas City, 250 bulk and filling stations, 1,000,000 barrels of steel storage and interest in various pipe line companies. The authorized capitalization is $30,000,000 of which $19,700,000 is outstanding. Its net liquid assets are estimated at $10,500,000.

Earnings for the nine months ending Sept. 30, 1922, before depreciation, were $4,373,332.

Little has been known in the oil industry of the Hamilton Oil Co. through which the Mutual is taking over the Merritt stock control. The entire stock of the company is said to be owned by 20 men, the leading figures being William Boyce Thompson, noted mining expert and financier, and Thomas W. Lamont, of J. P. Morgan & Co.

The assets of the company are said to be some 10,000 acres of leases in various parts of Oklahoma, producing 1200 to 1400 barrels of oil a day and properties in the Orange, Tex., field with production of some 300 barrels. The company has an office in the Kennedy building, Tulsa.

The basis of the transfer of the stock of the Hamilton Oil Co. to the Mutual has not been announced. However, a voting trust is being established for a majority of the Mutual stock to insure continuation of the present management and policy. The New York Trust Co. will be the depository of the trustees stock and the three trustees are Henry S. Osler, who was one of the voting trustees of the Midwest, and now is counsel for the Imperial Oil Ltd., Toronto, William Boyce Thompson and Carl H. Pforzheimer, 25 Broad street, New York. It is stated that a substantial part of the Mutual stock has already been placed in the voting trust.

As stated in Jan. 3 issue of **National Petroleum News**, the Mutual is at work and has been for some time, broadening its marketing territory. Roy E. Spear, assistant to Joe Walsh, sales manager, was in Cleveland and Ohio territory during the holiday season and lined up a considerable amount of business in that territory.

While the deal being put through will make the Mutual, as an individual company a larger factor in the marketing of Wyoming gasoline, the general effect on the Wyoming situation will be unimportant. The oil from the Big Muddy field instead of being purchased by the Ohio Oil Co. will presumably be run direct to the Mutual refinery. The Mutual has always operated in harmony with the Midwest and it is understood that considerable stock, if not in actual control of the Mutual is owned by members of the Midwest organization.

PITTSBURGH, Jan. 13.—The Pittsburgh Petroleum Club, which formerly met on Fridays at the Fort Pitt Hotel, now meets at Tuesday noon luncheon in the Chatham Hotel. All visiting oil men are invited to attend these meetings, which are always representative of the refining and marketing industries of the city. At the meeting last Tuesday, 26 oil men were present.

HOUSTON, Jan. 16.—Nearly 100,000 barrels of gasoline were burned at the Beaumont plant of the Magnolia Petroleum Co., yesterday after lightning struck two tanks.

OIL FIELD SUPPLY TRADE NEWS

Sinclair Buying More Steel Storage; Tonkawa Causes Demand For Line Pipe

Staff Special
TULSA, Jan. 13.

THE principal features of the local supply market during the past week were the placing of large orders for tankage by the Sinclair Crude Oil Purchasing Co., and a brisk demand for line pipe for immediate delivery, caused by decision of several large companies to lay lines into the Tonkawa field. Tonkawa continued to furnish the bulk of the general supply business, as it is the most active field in the state, but there has been a falling off in the great demand for rotary outfits for use there that was in evidence two weeks ago.

New tanks ordered by the Sinclair Crude Oil Purchasing Co. included 11 eighties bought from the Phoenix Iron Works, to be erected at Cushing and 12 of the same size, bought from the Chicago Bridge & Iron Works, for erection at Hominy, Osage county. The company also has inquiries out for 30 tanks of this size for erection at Casper, in connection with its recently secured contract for purchase of government royalty oil in Wyoming fields. Erection of the additional tanks on the Cushing tank farm, which is located four and one-half miles southeast of the town of that name, will make a total of 110 80,000-barrel tanks on the farm.

Another tank order placed during the week was that of the Ozark Pipe Line Co., (Roxana subsidiary), which has a tank farm in the same vicinity as that of the Sinclair Co. The Ozark company awarded a contract to the Warren City Tank & Boiler Co. for five eighties. This company recently built a six-inch line from Cushing to Tonkawa, and is reported to be considering doubling it, a report that gains in likelihood through this provision of additional tankage.

Prices on steel plates used in tank construction are advancing, in line with the general trend of the steel market, and are now quoted at around 2.50 cents, according to local tank manufacturers representatives. This advance, which went into effect about the first of the year, is at the rate of about $2 a ton.

The Gulf Pipe Line Co. has been in the market during the week for 35 miles of six-inch line pipe, and have been trying without success to obtain that amount out of stock for immediate delivery. This pipe is to be used in construction of the company's projected line into the Tonkawa field, and it is evident that it is considered a hurry-up proposition. Cosden, which is another company entering Tonkawa with a pipe line, also has been inquiring for line pipe during the week, specifying four-inch.

Troubles incident to rotary drilling in the Tonkawa field give rise to predictions that combination rigs will be the final solution of the problem, using the cable tools to break up the hard formations which have been causing the rotaries so much grief. Owing to the fact that drilling in this field requires a heavy rotary, it means the purchase of an entirely new outfit at a heavy expense to the contractor, and he is showing an inclination to hesitate in doing this after having seen several expensive holes lost lately.

Although at present there is a brisker demand for line pipe than for oil country goods, the latter is maintaining a strong enough position to prevent supply companies from accumulating stocks sufficient to offset the depletion which occurred during the period of shipping difficulties. Transportation conditions are reported to be better now than they have been for some time past, with shipments coming through without undue delay, and with little difficulty in obtaining cars. No changes in price of tubular goods nor other oil field supplies were recorded during the week.

Handling Gas On The Small Lease To Raise The Gravity Of The Crude

By John H. Wiggins

Article 5.

In a former article was discussed the effect of pressure in separating large quantities of gas from oil.

There are a large number of leases through Kansas, Oklahoma, Texas and Louisiana that make around 50 to 100 barrels of oil per day, which at the same time produce so little casinghead gas that the latter is not put through a gasoline recovery plant. Some of this gas may be burned in the lease houses, or even in gas engines to pump the wells, but, as far as any consideration being given to any special method of handling this gas during separation, in a large percentage of such cases this is forgotten.

It is generally believed by operators that such gas contains a certain proportion of gasoline vapor, no matter how they handle it during separation. This is far from the truth, for much of the natural gasoline vapor is picked out of the oil after the latter reaches the surface. There has been ample proof by practical tests of the above statement. Moreover it could not help being true from a theoretical standpoint.

Without going into theory let's take a practical case that is met with every day—a group of wells about 1000 feet deep on the pump and making around 50 barrels of oil and 100,000 cubic feet of gas per day.

Now John Smith, owning the above layout, leaves his casing head open and pumps his wells into a large separating tank which also has no pressure on it. Here the balance of the gas is separated from the oil. Most of these tanks are wide open, but soon these will be tight and it will be assumed that this one is now tight. Part of the gas from the well comes from the casing head, but a lot comes up with the oil itself. Without going into detail, the gas from John Smith's wells will contain about six gallons per 1000 cubic feet. This means 600 gallons or 14 barrels of 80 Be. stuff escaping from his oil. That is a considerable percentage of 50 barrels production.

Then John Jones comes along and buys this property. He closes in his casingheads and lets them pop off at 15-pound gage. He also runs his lead lines through some very small home-made gas separators. He figures out these traps so that the gas will remain in them only 5 or 10 seconds, not long enough to become saturated. Then the lines go into his water separating tank which is gas tight and near atmospheric pressure. Assuming the wells making the same amount of gas as formerly, it will now contain only three gallons per 1000 cubic feet or less. The loss from the oil is 300 gallons or 7 barrels.

Jones by this system of handling is saving 7 barrels of 77 Be. stuff in his formerly 34 Be. oil. This raises the gravity of his oil.

But Smith says to Jones, "You will cut your production of your lease with back pressure on your wells." That is an open question whether 15 pounds back pressure will cut the production more than will be saved. T. E. Swigart, U. S. Bureau of Mines, has shown in one case that 20 pounds back pressure did not cut the production of a well tested by him. Moreover a back pressure of about 50 pounds gage was reached where the rock pressure of the field was less than 60 pounds gage and the production was only cut from 22½ barrels per day to 18½ barrels per day.

Supposing that the lease will continue to make the 50 barrels of 34 Be. oil and, by handling the gas under 15 pounds pressure as above described, an extra seven barrels of 77 Be. gasoline is added to the crude. What does this mean in the way of gravity change? The crude will now show 37.5 gravity instead of 34 gravity as before. This means about 20 cents per barrel more.

If he made the same volume of oil—50 barrels—his income would be increased from $52.50 at $1.25 per barrel to $72.50 per day at $1.45 per barrel.

Probably no lease will conform to the above figures exactly but, as a general rule, it may be stated, "If the small volume of gas from small producing oil wells be handled properly, an increase in the gravity of the crude will follow."

The purpose of these articles is to bring to the attention of the producer such facts as have been outlined here.

There is a great deal that nobody knows about handling oil and gas. What is to be done then? The producer should find out for himself what are the real effects of a slight back pressure on his wells as far as barrels produced is concerned. Find out whether the gravity is thus raised and how much. In other words, find out the best way to operate the lease and make the most money in a year or a period of years.

Pipe Mills Behind Orders For Oil Field Tubular Goods

By Special Correspondent

PITTSBURGH, Jan. 16.—The growth in demand for oil country tubular goods, drive pipe, casing and line pipe, which was inaugurated a few weeks ago is becoming more marked than ever. The chief contributing factors are the increasingly widespread feeling that the National Tube Co., (the United States Steel Corp., pipe subsidiary) shortly will announce higher prices, and the ever-increasing list of pipe mills that are practically out of the market for the first quarter.

Oil pipe jobbers, particularly in the south and west, Texas, Oklahoma, Montana and Wyoming, are anticipating needs for six months to come and are endeavoring to place orders for as much as 1000, 1500 or even 2000 tons at a time. A typical inquiry for oil country pipe issued here this week called for the following:

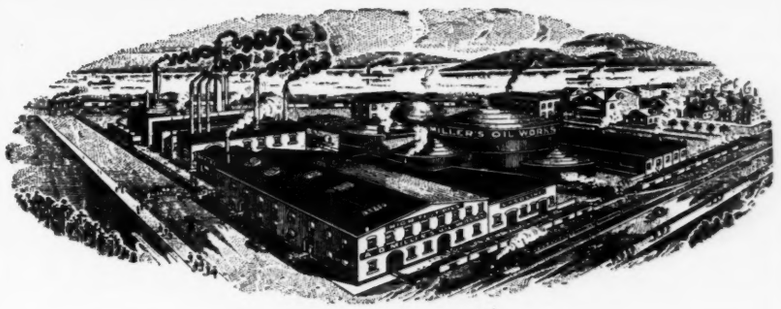
30,000 feet 4¾-inch, 15-pound
40,000 feet 6¼-inch, 26-pound
12,000 feet 8¼-inch, 32-pound
50,000 feet 8¾-inch, 36-pound
15,000 feet 10 -inch, 45-pound
5,000 feet 12½-inch, 50-pound
6,000 feet 15¼-inch, 70-pound

a total of 158,000 feet or approximately 2500 tons of pipe.

Jobbers in the Pennsylvania and Ohio territory, too, are commencing to issue inquiries, although the roads still are in numerous instances impassable. Owing to the delivery situation, however, with mills unable to promise anything before 8 to 10 weeks and in some sizes no deliveries before the latter part of March, they are beginning to realize the necessity of getting under cover immediately.

Various large oil interests themselves are buying and inquiring for large tonnages of line pipe. Some of these as well as various jobbers, who ordinarily depend entirely upon the steel corporation for their material, find it necessary to approach independent producers with offers of tonnage, since the National Tube Co. is unable to grant the desired delivery dates.

The Pure Oil Co., has just closed with a Pittsburgh district independent for 20 miles of 8-inch. The Texas Co., and the Mexican Petroleum Corp., as well as several other large interests, are active as purchasers of 8, 10 and 12-inch lines, varying in length from 10 to 50 miles. Standard companies too, are specifying large tonnages against contracts and are seeking to extend their bookings. Pipe mill operation in the Pittsburgh district continues up around 80 to 85 per cent of capacity. Oil well supply interests in the Oil City, Pa., district have been active as pig iron purchasers recently. The Oil Well Supply Co. asked for prices on 2000 tons and the Titusville Iron works, asked for a similar amount.



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64-66 Straight Run 375 End Point Gasoline
32-34 Dark Gas Oil
34-36 Light Straw Gas Oil
24-26 Paraffine Base Fuel Oil

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DID YOU READ

The description in last week's issue of the VAHEY OIL CO.'s new up-to-date oil station? Nothing is omitted to make its service the best.

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CYLINDER ENGINE
CORDAGE

RED AND PALE PARAFFINE OILS

Prices Of Tires Are Advanced 12½ Per Cent

HOUSTON, Jan. 12.—An advance in price of 12½ per cent on all standard sizes and makes of automobile tires, coupled with an advance of 15 per cent on all standard sizes and makes of tubes, is the only important price development of the week.

Rubber men see in this only the natural consequence of the continued stiffness in the price of crude rubber and fabric. Since July these have advanced 50 and 33 per cent, respectively. This caused an increase in the price of mechanical rubber Nov. 15 of about 15 per cent on all items. The large stock of tires and tubes on hand probably delayed the advance in those lines until now.

Smackover continues to lead in the consumption of materials from this district. The demand has lessened throughout the last three weeks, however, and indications are that the boom condition will not recur. Laredo is coming in for larger orders of material.

The pipe market, which behaved queerly all fall, has developed another interesting turn. With the resumption of shipments after the railroad strike embargoes and other obstacles interferred, so that up until about three weeks ago deliveries had not gotten properly regulated. About three weeks past, pipe seemed assured to everybody who wanted it.

At present, however, three of the largest pipe jobbers in this territory report that they are out of pipe, and are unable to get an adequate supply. In one case, only 25 per cent of the expected deliveries of pipe were made to a firm in December. The same situation is true in regard to January. Other jobbers report the same situation. The mill warehouses seem to be exhausted, and the mills are sold out for 90 days on oil country goods, and are from five to seven months behind on merchant pipe.

The pipe mills are replying to inquiries that labor is scarce. Until the labor situation clears up, it looks like a poor prospect for pipe.

In spite of these unfavorable conditions in the pipe business generally, there are two or three firms who are still securing all the pipe needed. These firms are, and have been, direct marketers for certain lines of pipe for years. So while the strict jobber is having difficulty in obtaining pipe, the supply houses that have carried definite lines of pipe for certain mills are sitting nicely, with a fairly regular and certain supply.

El Dorado has been using a considerable number of a certain sand pump of late. The D. & B. sand pump has been shipped into there for several months in smaller quantities, but since Jan. 1, orders have taken a jump. The pump is a positive acting plunger pump, designed with a very small clearance space, and according to the marketers, subject to very little wear and leakage. They are being successfully used in the El Dorado fields, at least. Twenty-five of them have been shipped since Jan. 1.

CASPER Jan. 13.—H. S. Dilcher, vice-president of the Petroleum Iron Works, of Sharon, Pa., and representative of that company in the Rocky Mountain territory ,and Miss May Sturgeon, of Casper, were married Dec. 29 in Denver. Mr. Dilcher came to Casper last summer and has had charge for his company of the erection of the steel work for the refinery of The Texas Co.

Gasoline Price War In Belgium Narrows Margin For Exporters

Staff Special

NEW YORK, Jan. 12

A GASOLINE price war is ripping Europe and it is having its effect on the export market in this country and just as there are more contenders for gallonage in Europe, there are more for the export busines from this country with the result that the markets have worked down to a very low level.

The center of European trouble at present is Belgium where the market to the consumer from garages is down to about 12 to 13 cents an American gallon which, less 3.1 cents per gallon duty and 1.5 cents per gallon commission to the dealer, nets the exporter at Atlantic coast and Gulf ports about 6 to 7 cents a gallon in cans, and this is 64 gravity, 365 to 375 end point gasoline.

However, the fight at present is confined to Belgium and the gallonage involved is not very large as there are only about 50,000 motor cars and trucks in the country. But it is indicative of what is taking place in the foreign business and is the result of the active entry of a number of American concerns for more business abroad, and of the Anglo-Persian Oil Co. of England.

The price cutting in Europe started in Italy early in the year but did not get to the low point that it has in Belgium—it has about run itself out there, then it appeared in Scandinavia and the latter part of August, broke out in Belgium. The entry of the Anglo-Persian in these other countries is credited as the chief cause of the fight, not that the Anglo-Persian has been proved to have started the trouble, but simply that it came in and undertook to take a part of the gallonage.

For years the gasoline business of Belgium had been handled by the American Petroleum Co., being the Standard Oil Co. of N. J; the Belgium Benzine Co. representing the Royal Dutch Shell; The Texas Co., and the last several years, the Union Petroleum Co. of Belgium, representing the Union Petroleum Co. of Philadelphia, which on behalf of the Sinclair organization, has gone into the marketing business in Belgium. The Pure Oil Co. of this country entered through the Purafina Oil and the Anglo-Persian which is the big prospective contender for not only European and Asiatic business but the world's business, against the Royal Dutch Shell and the Standard interests.

The American Petroleum and the Royal Dutch Shell originally had about 45 per cent of the gasoline gallonage each, and the Texas about 10 per cent. It is estimated that by August this gallonage had been cut down to 25 or 30 per cent for the bigger companies.

When the price fight started last summer all companies were getting about 25 cents an American gallon and from it made the duty payment and the commission allowance to the merchant. Deliveries in Belgium are made in approximately 2½ gallon cans which expense the oil companies, of course, carry.

Who started the fight is the debatable question—depending upon who you are talking to—but at all events, the latter part of August, the Belgium Benzine Co., representing the Royal Dutch Shell, cut the gasoline price 5 centimes and the price then kept coming down, first one company and then the other making a cut, between the Royal Dutch and American Petroleum Co. until it reached 70 centimes. Then the Royal Dutch moved it back to 75 centimes but the American Petroleum Co. stayed at 70 centimes and the Royal Dutch and the other companies finally recognized that price.

Since that time the price has steadily declined on the motion of the big companies until Dec. 29 it was reported that the American Petroleum Co. was making offers to garages as low as 50 centimes or about 11 to 12 cents American money, per gallon, with a special discount of 2 cents for the first 20,000 litres taken on an order, and 5 centimes in excess of that.

The kerosene market has always been weakening and on Jan. 3 the American Petroleum Co. was reported to be offering kerosene for contracts with the proviso that they would protect the buyer against any fall in the price.

It is reported that the American petroleum interests are going to keep at it until they get back their old percentage of the gallonage—some of the newer entrants have quit making a hard fight for business on a price basis, among them the Pure Oil Co. which reported holding to a price of 75 centimes which, of course, practically puts it out of the market for the time being.

Since the breaking out of the price fight in Belgium, the oil companies have been putting out gasoline pumps to garages and it is estimated that probably 30 have been placed up to the present time. The companies putting these pumps out loan the equipment to their customers as agents. This is the first appearance of the large gasoline pump in Belgium—small pumps fitted in steel drums are also being distributed.

Pumps are now pretty widely distributed in France and it is estimated there are from 1,000 to 1,500 of them—most of them are being put out by the Standard interests, and of course, pumps are fairly numerous in England, being introduced by the American oil interests.

No filling stations have been placed in Belgium yet but it is anticipated that they will appear—it is estimated that there are probably a score or more of filling stations in France, a large number of which are in the neighborhood of Paris. One filling station was completed in Berlin in September by the Erdol Auto Geselshaft. They are in every respect, almost duplicates of the American drive-in filling stations.

A number of smaller interests are bobbing up in Europe in the petroleum business, enough to invite the entrance of more exporters from this country. The result is that full advantage is being taken of the present low price of gasoline in American refineries, although the older exporters believe that this price is not going to last and are guarding their quotations for export. The newer entrants in the export business are said to be pushing hard for business on a straight price basis.

Joint Buying Association

INDIANAPOLIS, Jan. 11.—In September a number of service stations, not garages, got together and organized the Associated Service Stations for the joint purchase of supplies, according to W. C. Holmes, treasurer and manager of the M. A. Nowlin Feed Co. This company and another owning bulk storage for gasoline jointly furnish 40,000 gallons of storage which is used to serve members of the association. Although the compnay still bears his name, Mr. Holmes points out that M. A. Nowlin is now connected with the Sinclair Refining Co. and has nothing to do with the association. Members of the association are not only buying their gasoline in this manner, but tires, lamps, oil and all accessories.

Mr. Holmes states that the association, while it is supplying some outside commercial trade, is doing so at the full tank wagon price, profits on such business reverting to the Associated Service the name of the trucking service that hauls gasoline and other materials for Associated Service Stations.

Transacting business should be a pleasure in this well-appointed office of the Panhandle Refining Co. in the new Magnolia Building in Dallas. This particular office is that of Roy B. Jones, president and general manager. At the right is J. A. Germany, vice-president, and at the left is W. E. Campbell, sales manager.

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Here And There

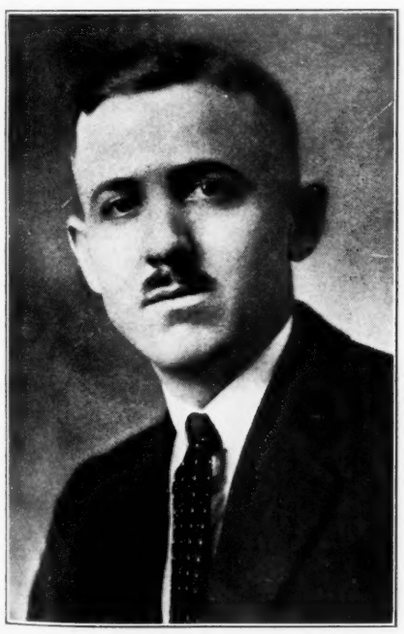
TULSA, Jan. 13

CLEM and Earl Davis, who have operated as the Creek Oil Co. at Slick, Okla., with a bulk station and two service stations, have sold their business and are moving to Portland, Ore., where they are to organize a jobbing corporation which will be known as the Columbia Oil Co. They will be distributors of Thermoil motor oil for that territory.

Before entering the jobbing business Clem Davis was associated with the Transcontinental Oil Co. and the Oklahoma Producing & Refining Corp. for a number of years. His brother served with the Wenger-Armstrong Corp.

* * *

Springfield, Ill., Jan. 12.—R. G. Hanson, salesman with the Peoria division of the Standard Oil Co. for four years and for the last 18 months lubricating oil salesman in Springfield, has become secretary, treasurer and general manager of the George Solle Oil Co. which has been in the jobbing business here 25 years. George Solle, president of the company, will retire from active business. An office building recently was completed at the company bulk plant at 1925 E. Adams street. The company operates five trucks.



Earl Davis

Cleveland, Jan. 11.—A. J. Millns, who was elected a director of the Standard Oil Co. of Ohio succeeding the late C. G. Taplin, entered the employ of the company in 1884 as an office boy. Two years afterward he was promoted to bookkeeper and later was specialty salesman, manager of that department and then manager of the lubricating oil department.

* * *

Cleveland, Jan. 11.—The Magic Oil & Paint Co., formerly the Capital Oil & Paint Co., with general offices at 602 Meriam building, 5716 Euclid avenue, Cleveland, and which was reorganized April 1, 1922, was reincorporated Jan. 1. George L. Hart, general manager and secretary, was formerly head of the George L. Clark Co. Joseph D. Smith, sales manager, was formerly with the Tropical Paint & Oil Co. The company is handling Pennsylvania oils and greases. it is specializing in industrial trade, but is caring for other consumers as well.

* * *

Pittsburgh, Pa., Jan. 13.—Harry Bush, formerly with the Morris Automatic Scale Co., has joined the automotive sales department of Waverly Oil Works Co. H. Glenn Triplett of the automotive sales department of that company has been promoted to special representative.

* * *

Enid, Okla., Jan. 12.—The Champlin Refining Co., which recently bought the stations here of the Goodwill Oil Co., now has 30 service stations in northwestern Oklahoma and Texas. The Goodwill company was built up by Charles Goodwill, who died of injuries received several years ago.

* * *

Houston, Jan. 11.—H. L. Nolan, manager of sales for the Continental Supply Co. from the general offices in St. Louis, has been spending the week at the Fort Worth and Houston branches. He will return by way of Tulsa about the end of the week.

* * *

El Paso, Texas, Jan. 11.—The Rio Grande Oil Co. has sent paper weights to the oil trade in its territory as a New Year's remembrance. These are of black leather, sand filled and bear in gold letters the trade name of the company's products, "Speedene."

* * *

Portland, Ore., Jan. 10.—Elliott R. Brett has accepted a position as field man for G. G. Campbell, the Pacific coast distributor for the Waverly Oil Works Co. products. Mr. Brett will operate in California for the next few months.

* * *

Phillips, Wis., Jan. 12.—The Thies Lumber & Oil Co. of Minneapolis has completed preliminary work on a site for a service station here. A bulk station also will be installed.

* * *

West Union, Ill., Jan. 10.—The Medsker Produce Co., of West Union, is increasing its storage plant by two 15,000-gallon tanks, one each for gasoline and kerosene.

* * *

New Castle, Pa., Jan. 12.—Lewis E. Simons, 85 years old, for may years engaged in the oil business here, died Jan. 10.

* * *

Ashland, Wis., Jan. 11.—Angus MacMillan, salesman for the Standard Oil Co., is celebrating the recent arrival of a son, Donald Angus.

* * *

La. Grange, Ga., Jan. 10.— The R. E. Hawkins & Son Oil Co. has installed another large tank for kerosene and has put on another truck. The company is enlarging its Green Street station here by building a third drive and installing another pump. The station also has been repainted and is very attractive.

* * *

Bayfield, Wis., Jan. 12.—Standard Oil Co. salesmen and superintendents in this territory took their vacations over the holidays.

Clem Davis

Allegan, Mich., Jan. 11.—The Cook Oil Co., owned by Grover C. Cook, has added a new truck to its equipment here.

Sloan & Zook Enterprises Merged And Incorporated

BRADFORD, Pa., Jan. 11.—The operations of William J. Sloan and R. T. Zook in the oil and gas industry have been consolidated and are being conducted by the Sloan & Zook Co., incorporated under the laws of Pennsylvania with $600,000 capital stock, all common, and which began business Jan. 1. The general offices remain at Bradford.

The enterprises not being operated by the one company include: the Kane Gasoline Co., which has a large and well equipped casinghead gasoline plant at Kane, Pa.,; approximately 50 miles of gathering and main pipe lines transporting natural gas; Sloan & Zook, a partnership doing a general marketing business in petroleum products; the Sloan & Zook Tank Car Line, operating 55 insulated tank cars, and oil and gas production in about 1000 acres in the Kane, Pa., field.

The officers of the new corporation are: R. T. Zook, president; William J. Sloan, vice president and treasurer; C. T. Rickerson, secretary; C. R. Kerr, sales manager, and E. E. Peters, assistant sales manager. These men also comprise the board of directors.

D. L. Evans will have charge of the traffic department as heretofore, C. T. McCool will have charge of the purchasing department, and Paul H. Zook will be field manager.

This 1500 gallon Fuel Oil Tank is equipped with a Rotary Pump for both loading and unloading fuel oil. The pump is just back of the cab.

Speeding Up Fuel Oil Deliveries

It will pay you to invest in Quality Fuel oil equipment, because the widening demand and larger market calls for better service. How can you render this special service at a minimum cost? Heil has solved the problem for you by its special tanks for heavy oil.

Heil's special fuel oil tanks save loading and unloading time. Their 3-inch outlets and 3-inch piping insure this. The compartments are guaranteed to be accurate. Tanks are furnished either with single or double compartment heads. Piping is fitted with gate valve shut offs. Can racks, bucket boxes can be supplied.

Ask for complete detailed specifications

THE HEIL CO.

1238-50 26th Avenue Milwaukee, Wisconsin

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Standard Parts Corporation, Richmond, Va.
Modern Vehicle Co., San Francisco, Calif.
Steffen Van Steenwyk Co., Sioux City

Vulcan Oil Refining Company

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Refiners of Pennsylvania Crude Oil

Gasolines and Napthas
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Automobile Oils
Viscous and Non-Viscous Pale Neutral Oils
Filtered and Steam Refined Cylinder Stocks
Tempering and Tractor Oil
White Paraffine Wax

Low and Regular Cold Test 300 Mineral Seal Oil
All Grades Compounded Oils

Tank Car and Mixed Carload Shipments

Marland's Service Code Distributed To Customers

Staff Special

PONCA CITY, Jan. 11.—The operator of a chain of hotels in the United States has recently based his advertising campaign on his instructions to employees regarding the services they must render. L. A. Warren, manager of the branch sales department of the Marland Refining Co., has issued the "Marland Service Code for Marland Service Men." In addition to requiring its study by station attendants he is having the booklet distributed to Marland customers as a method of advertising.

The service code is in 12 parts, many of which contain statements which are calculated to impress the purchaser of Marland products with their quality as well as to instruct station men in their duties to customers. The code follows:

"1. Arrival and departure. 'Meet 'em at the pump' is the best way to convince customers of your desire to render satisfactory service. If you are busy on one car when another one drives in, call to the new customer, 'Be there in a minute' —and indicate to him by your actions that you are losing no time but are giving the car you are on the kind of service he wants. As a customer is leaving say to him or her, 'Well, hurry back!' 'Come again,' 'Don't forget the number,' or some similar parting suggestion. The two times when the customer is most impressed with your attitude are just as he drives up and just as he drives away.

"2. Free water and air. While water and air are not paid for in cash, they are paid for in good will, which is the best asset any business can have. Marland stations are real service stations—as well as sales stations. Give each motorist free water and air quickly, willingly and efficiently, whether he needs anything else or not. Do not wait to be asked. Always look into the radiator and test tires when they seem to need air. It takes only a minute and motorists will appreciate your thoughtfulness.

"3. Gasoline. You know that Marland gasoline is as good as the best. Handle it as if you believed this. If you want your customers to consider Marland gasoline a precious fluid don't spill or waste a drop. Careless handling of your gasoline hose allowing gasoline to run over and spill in the car or on the drive leaves two bad impressions with the customer. First, that he is paying for the waste. Second, that the gasoline must not be so good after all, judging from the lack of pride you show in dispensing it. Carefulness and efficiency pay in more ways than one.

"4. Lubricating oils. Be careful to recommend the right grade of Marland oil to an inquiring customer. Don't guess at it. If you don't know off hand, refer to your chart. As you know we make the right grade of Marland oil for every type of motor. It means more miles and greater satisfaction to the motorist, and this means more business for you, through having created a permanent customer, who trusts you to recommend what is right.

"5. Emergency repairs. Be ready at all times to make any minor emergency repairs that you can for motorists. But do not attempt to make a repair that you are not sure that you can make without possibility of damage to the car. In making repairs do so in the right spirit. You needn't even ask the motorist to run his car off the drive. If you will just start

(Continued on page 41)

(Continued from page 38)

to push the car forward, he will invariably start his motor, without your having to ask him. If the damage is such that you do not care to repair it, explain this in a kindly manner and offer to telephone a garage that can serve him properly.

"6. Ladies' rest room. Keep your ladies' rest room so that the appearance will have a restful effect on all visitors. Show that Marland men know refined service as well as refined oils. A rusty tin cup or a soiled drinking glass on the water cooler is worse than running out of gas. Make all realize by the way you treat them that they are welcome to use Marland rest rooms at any time. With a large string of Marland stations in Oklahoma, Missouri and Kansas, let your rest room be a good recommendation for all of them, so that travelers will always welcome the sight of a Marland station.

"7. Misunderstandings. Misunderstandings with some patrons will arise. Always take the 'I may be mistaken' attitude with a smile. Never let that smile get away from you. A smile is a lot like good oil in smoothing things out. Remember at all times that you represent the Marland Refining Co.—that you are the Marland Refining Co. of the public. To you is entrusted the privilege of maintaining and extending the valuable Marland good will. Never under any circumstances argue with a customer. Keep smiling—regardless.

"8. Cleanliness. Come clean, stay clean and go clean. Avoid dirt around your station. You can do as much by keeping dirt away as by sweeping it away. Cigarette snipes, filthy talk, scattered waste and misplaced cans and tools all constitute uncleanliness.

"9. Courtesy. Courtesy is nothing more than the application of the golden rule to your daily conduct in your relations with the public. Courtesy has probably gotten and held more customers than any one other thing that was ever practised in the filling station business.

"10. Accessories. Always be ready to give names and addresses of reputable local accessory dealers. Offer to telephone the dealer if some accessory is needed before the car will run. Where quality, prices and service are equal make it a point to recommend accessory dealers who are Marland customers and Marland boosters.

"11. Information. Establish a reputation for your station as an effective and helpful information bureau. Be prepared to give advice as to best routes, distances and directions. Also be ready to advise incoming motorists regarding the best hotel and restaurant accommodations in your town. Careful reading of the newspapers for news of surrounding territory and conversations with motorists will help you to be of real assistance in giving information.

"12. Suggestions. Without ever seeming to be too insistent on selling something, make sure that motorists are always given the opportunity to buy anything in the Marland Line that they may need. You can actually serve the motorist many times by tactfully questioning him as to something that he might not call for, but which he might need. Some motorists sadly neglect oiling and greasing because they do not know enough about a car to know just what it needs. When the need is called to their attention, they regard it as a service on your part which they very much appreciate. Suggestions, if properly put, are always in order, and welcomed by motorists."

K&W Super-Viscous
LUBRICATING OILS

Pale and
Red
Lubricating
Oils
of Various Viscosities

ZERO COLD TEST

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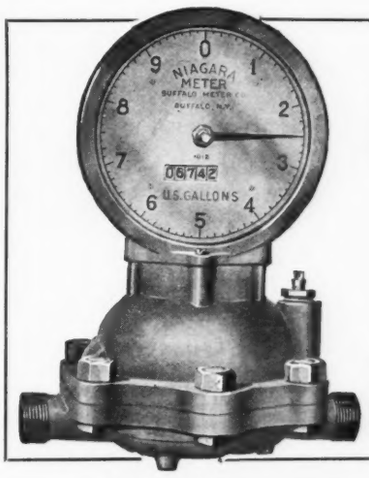

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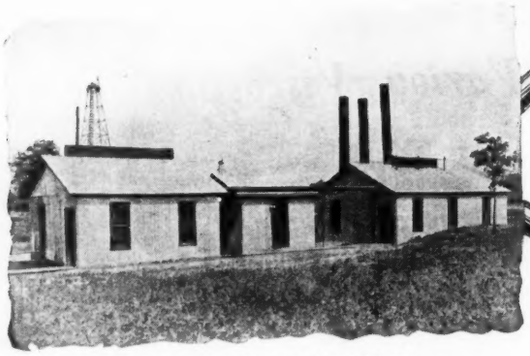
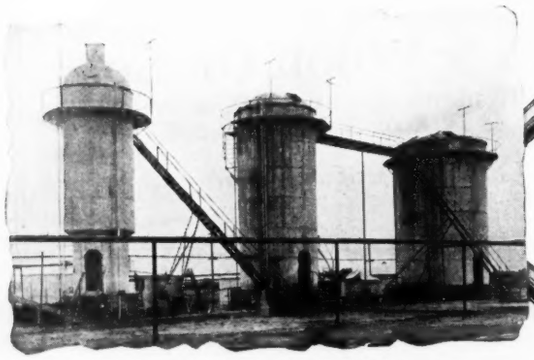


Our own pipe-lines (photo shows pipe-line pumping station)

Our own independent refineries and gasoline-plants



Agitators at one of our Oklahoma refineries

Our own independently operated tank cars

ARCO PETROLEUM PRODUCTS

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PRODUCERS & REFINERS CORPORATION

DENVER CHICAGO TULSA

DIGEST of TODAY'S OIL TECHNOLOGY

Determination of the Tar Number of Transformer and Turbine Oils

F. Schwarz and J. Marcusson, Petroleum Zeitschrift; Vol. 18, 1922; Chemical Abstracts, Nov. 20, 1922.

FIFTY grams of oil is heated in a 200 cubic centimeter Erlenmeyer flask at 120 degrees for 50 hours. The oil is then heated for 15 minutes at 80 degrees in a dephlegmating tube with 50 cubic centimeters for a solution composed of 50 per cent by weight of alcohol and 4 per cent of caustic soda and then shaken vigorously for five minutes. It is poured into a separitory funnel and allowed to stand overnight. As much as possible of the caustic is filtered into a graduated cylinder and extracted with 30 cubic centimeters of low boiling gasoline. The gasoline extract is treated again with 10 cubic centimeters of 50 per cent alcohol containing a few drops of caustic soda the alcohol layer combined with the tar soap solution and the whole brought to acid reaction with hydrochloric acid. The acid solution is shaken two or three times with 50 cubic centimeters of benzene, the combined benzene extracts are washed acid-free with distilled water and the residue is dried for 10 minutes at 105 degrees.

Refining of Cracked Hydrocarbon Oils

J. C. Morrell and G. Egloff, Journal of the Institution of Petroleum Technologists, October, 1922.

The various methods of refining light petroleum distillates are discussed. The general methods involved are: (a) physical; (b) chemical. The physical method of refining involving the use of various absorbent earths, though giving good results, cannot compete commercially with chemical methods of refining. The chief chemical method in use today is the sulphuric acid method of refining, and it is the use of various modifications of this method upon which the authors lay the greatest stress. Applying various modifications of this method with regard to subsequent treatment, as well as concentration and amounts of reagents, the authors have successfully refined cracked distillates from the following raw materials, and have produced water white gasoline of sweet odor, as well as a product which will pass the corrosion and doctor test: (a) California gas oil; (b) Mid-Continent fuel oil; (c) Mid-Continent gas oil; (d) Mexican gas oil; (e) Texas fuel oil. The raw oils were cracked on a commercial scale in the gas-liquid phase. The authors described in detail the methods used with full discussion of the theories involved, especial stress being laid upon the treatment of hydrocarbons containing sulphur compounds. The effect of the sulphuric acid treatment upon the unsaturated per cent is also discussed. It is concluded that, following the methods and principles laid down by the author, all types of cracked hydrocarbons, regardless of the type of raw oil used to produce them, can be successfully treated to produce water white products of sweet odor.

REVIEWED BY REFINER

The purpose of this department is to place before the busy oil man a digest of the current technical literature of the industry from week to week in such form that he can keep in touch with scientific developments without taking the time to read the lengthy books, papers and reports involved.

The man conducting the department is a technologist employed by one of the large refining companies, who in course of his work keeps himself acquainted wth technological lectures, reports and books as they are issued.—Editor.

Limit of Absorptive Power of Floridin

M. A. Rakusin, Petroleum Zeitschrift, Chemical Abstracts, Nov. 20, 1922.

A 1 per cent solution of Grosney paraffin-free oil was decolorized by standing at ordinary temperature for 24 hours with 5 per cent of floridin (aluminum magnesium hydrosilicate). The carbonization constant rose from 18.75 to 100 per cent; the solution was not polarized, and was colorless. Greater amounts of floridin showed no marked effect. Further experiments to determine the effect of time on the absorption gave:

Duration of absorption	1%.	Mass of floridin 2%.	3%.	5%.	8%.
		Degree of decolorization			
24	25%	50%	75%	100%	100%
48	50	75	100		
72	75	100			
96	100				

The original solution had the color of weak coffee. When K = 100 per cent in the first two solutions the color was straw-yellow and in the last three it was colorless.

Refining of Gasoline and Kerosene by Hypochlorite Solutions

A. E. Dunstan and B. T. Brooks, Journal of the Institution of Petroleum Technologists, October, 1922.

The present paper is a description of the process developed and perfected by A. E. Dunstan and his associates in the Anglo-Persian Oil Co. It is the first successful industrial utilization of hypochlorite solutions for refining of petroleum oils. Gasoline and kerosene may be refined in this way with treating losses of less than ½ of 1 per cent. Malodorous compounds, including sulphur derivitives, are removed. The treated oil is free from chlorine, is free from substances which develop acidity, gummy substances or discolorations on standing, and it eliminates obnoxious waste products such as acid tar, eliminates acid recovery, and the process can be carried out in the usual form of treating apparatus. The new method, therefore, is cleaner and easier to operate, gives a much better refined product, and the refining costs are markedly lower, particularly when the losses incidental to sulphuric acid refining are included in the comparison. The process is particularly adapted to light distillates from high sulphur crudes, and the savings are geratest in the case of cracked gasolines.

Some Factors Affecting the Accuracy of Saybolt Viscosity Measurements and Their Control

P. E. Klopsteg and W. H. Stannard, Journal of the Institution of Petroleum Technologists, October, 1922.

Without a suitable form of automatic temperature control, it is impossible to secure experimental conditions which conform to A. S. T. M. specifications, namely, that "The bath shall be held constant within 0.25 degree F. (0.14 degree C.) at such temperature as will maintain the desired temperature in the standard oil tube." At any rate, the requirements cannot be met with the form of bath described in the specifications.

In this paper the development is described of an electric heating and regulating device which, at a temperature of 212 degrees F. (100 degrees C.) will hold the bath temperature constant within 0.1 degree F. (.05 degree C.) throughout the entire day's run without attention.

Conditions within the oil tube are also considered, and it is shown that when the A. S. T. M. method of stirring is followed, even with the bath temperature very constant at 212 deg. F., variations of 0.5 degree F. are observable on a sufficiently sensitive stirring thermometer. A method of stirring is then described by means of which it was found possible to hold the temperature of the sample under test constant to 0.01 degree F. over a period of many minutes. Tabulated data show the Saybolt readings at different temperatures, for samples tested under "Standard" conditions, and with the new apparatus.

Thermotechnical Researches on a Benzol Plant

F. Plenz, K. Boder, T. Werner, Gas und Wasserfach, Vol. 65, pp. 433-35, 1922; Journal of the Institution of Petroleum Technologists, Oct. 1922.

The extraction of benzene from gas works and coke ovens gas by washing with high-boiling point tar oil and the recovery of the benzene by distillation with steam are purely physical processes, there being as far as is known, no intermediate chemical reactions. The expenditure of energy in the washing process is comparatively small, but the benzene recovery requires considerable energy. The present investigation concerns the distillation process, exclusive of pumps, and such. The washing is a continuous process, whereas the recovery is intermittent. In the recoyerv, the oil from the washing passes through a counter-current preheater, warmed by the exhausted washing oil, and through a steam heater, whence it enters the distillation chamber. It then passes through the preheater and two coolers and back to the scrubber again. The distillation is effected intermittently

Usaco The Leading Air Compressor of a Superior Type

As applied to garage and service station air compressors, the *Two Stage* principle has long been proven superior.

Foremost in this type stands the *Usaco* Compressor, a pioneer in the field and trail blazer in the introduction of improvements and refinements.

Any unit in the complete Usaco Line is a composite of scientific design, perfectly balanced and liberally proportioned parts, highest grade materials and specialized manufacturing effort.

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Some Outstanding Features

The Usaco Unloader—an exclusive, patented feature which automatically safeguards against the most prevalent damaging conditions to which air compressors are subjected.

40 *Degree Repulsion Induction Motors*—will withstand great overload without damage. The most expensive motors it is possible to buy.

Cylinders Cast EnBloc—assuring perfect and permanent alignment which means a greatly prolonged life of usefulness.

An Indestructible Intercooler—in conjunction with an *Improved Fan Type Flywheel* results in practically perfect cooling with attendant high efficiency.

Filtering Trap and Automatic Moisture Unloader—combine to assure that only clean dry air will enter tires.

Two Stage Usaco AIR COMPRESSORS Single Stage

A few cars of unusually low end point stuff are sometimes available after our regular customers have been taken care of.

Palmer Hughes
Sales Manager

Clayton Oil & Refining Company
Kirby Building **Dallas, Texas**

with direct and indirect steam, and the benzene is condensed in a water-cooled condenser. Observations showed that the weight of steam used in distillation per unit of oil varied from 2.86 to 4.85, and of cooling water from 38.0 to 134.8, and 1.44 litres of washing oil are required for each cubic meter of gas. A diagrammatic representation of the heat distribution in the plant is given, and tables showing the heat transfer in the different members of the system.

Desulphurizing Oils an Improved Means

A. C. Nesfield, English Patent 183,527

The oil is treated in a thin film with chlorine gas. The treatment takes place in a tower, down which the oil descends being caused to form films by flowing over cones. The chlorine is circulated, but has to be replaced in time, owing to loss of efficiency. The sulphur is precipitated in flocculent form, and is separated from the oil by filtration, centrifugal treatment or removed by means of water. The reaction is expedited by the addition of quicklime, and by preheating the oil to a suitable temperature—for certain oils 100-120 degrees C. The precipitate consists of sulphur compounds in addition to sulphur, and may contain bituminous matter.

Improvements in the Process of Separating Oils

Trent Process Co., English Patent 167,738

The process is designed to deal with such emulsions as base sediment refining acids and sludges. When such emulsions are agitated with comminated carbon the oil and carbon unite, forming an agglomerate from which the water and other substances separate. The carbon used is fine enough to pass through a 100-200 mesh sieve, and the quantity used is 21 pounds of carbon to 1 pound of oil, in the mixture. The oil-carbon mixture sinks in still water, and may be used direct as fuel or distilled to recover the oil.

Separation of Petroleum Oil Sludges

S. H. Diggs, U. S. Patent 1,418,781.

The acid sludge obtained in the treatment of petroleum oils with sulphuric acid is mixed with sludge obtained by treating oils with fuming acids and with gas oil. The whole is mixed with water and steamed when separation of the acid takes place. This is repeated until practically all the acid is removed. The residues are suitable for the manufacture of commercial asphalt.

Preparation of Pure Distillates of Mineral Oil

De Bataafsche Petroleum Maatschappij, Holland Patent 2693

Pure distillates of crude petroleum oil, which can be sold without further purification are obtained by adding from 5 to 20 per cent by weight of H^3BO^3 to the oil and distilling. It is preferable to first put the H^3BO^3 in the still, heat up and then run in the oil.

Purifying Sulfonic Acids

A. Wolff, U. S. Patent 1,428,197

Inorganic salts are removed from sulfonic acids obtained by the treatment of mineral oils with sulphuric acid by washing the salt-containing sulfonic acid with about 20 per cent (based on the weight of the sulfonic acids treated) of sulphuric acid of about 40-50 per cent strength, at a temperature of about 60 degrees.

Comparative Figures On Petroleum Imports

IMPORTS of petroleum and petroleum products in December totaled 8,579,871 barrels compared with 8,267,544 barrels in November, according to figures compiled by the American Petroleum Institute. This was an increase of 1200 barrels on the daily average. The institute's figures (amounts in barrels) for the two months and also for the weeks ended Jan. 6 and Dec. 30 follow:

	Total Month of December	Total Month of November	Week Ended Jan. 6	Week Ended Dec. 30
Atlantic Ports:				
Baltimore	664,819	682,000	85,000	170,000
Boston	657,115	513,370	213,000	108,115
New York	2,626,500	2,007,893	695,300	471,000
Philadelphia	396,065	927,990	193,000	65,000
Others	906,016	1,031,676	231,000	177,140
Total	5,250,515	5,162,929	1,417,300	991,255
Daily average	169,371	172,097	202,471	141,608
Gulf Ports:				
Galveston District	1,599,000	1,331,000	286,000	409,000
New Orleans and Baton Rouge	940,356	612,085	263,115	170,000
Port Arthur and Sabine District	710,000	1,079,000	260,654	283,000
Tampa	80,000	74,000	.....	.....
Total	3,329,356	3,096,085	809,769	862,000
Daily average	107,399	103,203	115,681	123,143
Pacific Ports:				
San Francisco	.....	8,530	.....	.....
Daily average	.....	284	.....	.....
All U. S. Ports:				
Total	8,579,871	8,267,544	2,227,069	1,853,255
Daily average	276,770	275,584	318,152	264,751

Exports Of Crude And Refined Oils Compared

WASHINGTON, Jan. 11.—Exports of light petroleum products declined in November compared with October, but shipments of lubricating, gas and fuel and crude oils increased. The average price of the gasoline exports was 20.3 cents a gallon compared with 21.6 in October. Value of kerosene exports increased from 8.6 to 9.2 cents a gallon and lubricating oil shipments fell from 22.2 to 22.15 cents a gallon on the average. November wax exports amounted to 24,361,156 pounds. Detailed figures of crude and leading products follow:

EXPORTS OF PETROLEUM AND ITS PRODUCTS FROM U. S.

	11 Months Ended Nov., 1922		11 Months Ended Nov., 1921	
Commodity	Gallons	Value	Gallons	Value
Gasoline and Naptha	532,584,028	$117,408,227	496,711,645	$122,024,436
Kerosene	814,297,292	$ 75,599,596	683,002,482	$ 87,105,720
Lubricants	307,569,782	$ 70,824,178	254,147,047	$ 84,112,734
Gas and Fuel Oil	619,714,154	$ 24,034,502	775,326,765	$ 42,822,524
Crude Oil	373,239,738	$ 16,784,839	350,369,285	$ 19,272,258
Total Exports	2,647,404,994	$304,651,337	2,559,557,224	$ 35,523,672

EXPORTS IN NOVEMBER, 1922, OCTOBER, 1922, AND NOVEMBER, 1921

Commodity		Nov. 1922	Oct., 1922	Nov. 1921
Gasoline and Naptha	Gallons	41,572,149	42,757,013	45,876,193
	Value	$ 8,449,693	$ 9,258,888	$ 9,704,276
Kerosene	Gallons	76,769,411	84,061,345	76,127,411
	Value	$ 7,037,924	$ 7,388,320	$ 7,538,978
Lubricants	Gallons	27,738,592	26,333,271	27,685,954
	Value	$ 6,139,690	$ 6,833,282	$ 7,137,170
Fuel and Gas Oils	Gallons	65,756,948	58,975,070	40,585,639
	Value	$ 1,993,007	$ 1,915,251	$ 1,735,348
Crude Oil	Gallons	35,970,462	29,990,195	36,297,347
	Value	$ 1,421,207	$ 1,196,708	$ 1,556,833
Total Exports	Gallons	247,807,562	242,116,894	226,572,544
	Value	25,041,521	$26,592,449	$27,672,605

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68—70 350 E. P.
66—68 360 E. P.
64—66 380 E. P.
60—62 400 E. P.
58—60
Straight Run Gasoline
Casinghead and Absorption Gasoline
Blended Gasolines
Any Gravity
KEROSENE
DISTILLATES
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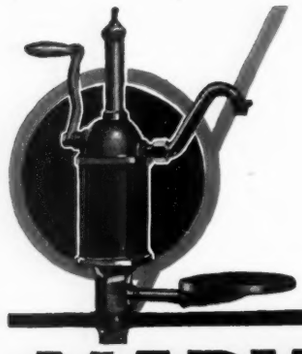

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Los Angeles, Calif.

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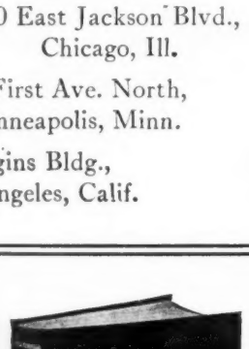

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National Petroleum News
809 Caxton Bldg. Cleveland, Ohio

Report Shows Growth Of Refining In Britain

By Special Correspondent

WASHINGTON, Jan. 13.—The amount of crude petroleum imported into the Swansea consular district during the first nine months of 1922 was 3,172,000 barrels, as compared with 1,456,000 barrels for the same period of 1921, U. S. Consul, A. B. Cooke, at Swansea reports. The petroleum was brought chiefly from Abadan, Persia, by the British Tankers, Ltd., a subsidiary of the Anglo-Persian Oil Co., Ltd., to be refined at the refineries of the latter company at Llandarcy, near Swansea.

The amount of fuel exported from the refineries, coastwise and foreign, during the first nine months of 1922, was 3,050,000 barrels, as compared with 530,900 barrels during the same period of 1921. The exports include both bunker and cargo oil.

The local oil refineries have installed a complete plant for the production of gasoline, both the higher and the lower grades; and they have begun to turn out this product in considerable quantities. Tank cars in large numbers are available for the inland distribution of this product, and the manufacture of it by the refineries is expected to be one of the leading activities of the Llandarcy plant.

Magnolia's Runs Show Increase In December

Staff Special

HOUSTON, Jan. 11.—Magnolia Petroleum Co., pipe line department, announces from Dallas headquarters, its runs, shipments and stock figures for December against which November comparisons are made as follows:

Total Runs By Districts

	November	December
Mexia	172,041.15	188,211.13
Hewitt	31,622.70	29,609.33
Thrall	2,293.29	2,213.74
Healdton	348,660.70	341,214.96
Electra	188,012.04	195,409.31
Henryetta	4,541.71	4,744.96
Cushing	104,083.96	105,662.90
Yale	77,328.08	59,734.10
Cement	54,859.12	55,670.18
Duncan	116,326.10	106,844.77
Corsicana heavy	9,644.00	9,704.49
Corsicana light	6,477.91	7,717.05
El Dorado, Kan.	39,232.71	40,989.73
Comanche (Desdemona)	55,736.32	59,571.21
Olden (Ranger)	17,263.17	17,943.32
Coleman	381.20	None
Stephens (Breckenridge)	59,953.72	56,789.03
Walters-Beaver Creek	26,623.54	28,632.53
Union County, Ark.	14,400.04	13,385.02
Bull Bayou	24,736.87	27,455.88
Haynesville	2,150.44	8,067.31
Mirando		7,981.75
	1,356,368.77	1,362,462.70

Pipeline Summary for December

Oklahoma-Kansas

	Runs	Daily Average
Runs	768,358.50	24,785.76
Shipments	853,966.64	27,547.31
Stocks		6,664,093.45
North Central Texas		
Runs	354,093.11	11,422.36
Shipments	300,344.56	9,688.53
Stocks		3,841,175.68
East Central Texas		
Runs	188,211.13	6,071.32
Shipments	446,247.90	14,395.09
Stocks		1,065,027.11

PRODUCTION SECTION

Mid-Continent Bureau
608 Cosden Building
TULSA

Eastern Bureau
Eighth Floor Caxton Building
CLEVELAND

Southwestern Bureau
614 West Building
HOUSTON

Correspondents in Parkersburg, W. Va.—Pittsburgh, Pa.—Lexington, Ky.—Shreveport, La.—Casper, Wyo. Los Angeles, Calif.—Washington, D. C.—Tampico, Mexico

Big Merger Is Delayed By European Situation

NEW YORK, Jan. 13.—It may be said authoritatively that the rumors of coming merger of Transcontinental Oil Co., Arkansas Natural Gas Co., and Union Oil Co., of California, have been founded on fact, although the plans are temporarily held up.

Negotiations have been in progress for some weeks between financial and oil company interests, several oil companies which have not been named in the newspapers so far being included in the plan which would result in the formation of a company of tremendous scope, both in production and refining. The plan now awaits stabilization of the Franco-German situation, the threat of industrial or military upheaval in Europe having caused considerable apprehension in financial centers.

It has been reported that W. P. G. Harding, former head of the Federal Reserve Board, would head the company that would result from the merger.

Burbank Extension Well Is Flowing 400 Barrels

TULSA, Jan. 15.—The wildcat test of the Sapulpa Refining Co. and others northwest of the Burbank field, located in the southwest of 15-27-5, has been deepened to 3,068 feet and is now believed to be about on bottom of the sand which was topped at 2997 feet. It is flowing by heads and making 400 barrels a day natural. The oil is of 38.1 gravity.

In the Tonkawa field, the latest well is Comar Oil Co.'s No. 1 Gaume, located in the northwest corner of the northeast quarter of 2-24-1 west. This well is making 130 barrels an hour in sand from 2454 to 2504. It is on the eastern edge of present prodction and is a south offset to the large well recently completed on the Ogg farm by the same company. Total production of Tonkawa field as of Jan. 13, was 36,120 barrels, from 75 wells, not including the Comar well mentioned above.

Gas Show In Deep Test

SHREVEPORT, Jan. 13.—A gas show at 3435 feet with drill stem stuck in the hole was reported yesterday in the deep test of the Gilliland Oil Co., its No. 1, S. C. Waller, in 11-23-8, Haynesville district, according to information reaching oil circles here. The test was begun with the intention, it is reported of going past the original pay at 2800 to 2900 feet (extreme limits) in search of the Woodbine sand, which the state department of conservation estimated would be found at 3000 to 3200 feet.

At 2852 feet the hole went into salt water in five feet of sand, it is reported, which was successfully shut off. The second string, 2731 feet of 8-inch casing, was set inside 112 feet of 12-inch. The show at present is admittedly small but has some encouragement about it.

Former Prairie Property Included In New Company

SHREVEPORT, Jan. 15.—Daniel R. Weller, president of Standard Oil Co. of Louisiana, announced at Baton Rouge Jan. 15, the organization of the Standard Pipe Line Co., incorporated as a common carrier of oil with capital stock of $25,000,000. This segregates the transportation of oil by the Standard of Louisiana to a strictly pipe line company as compared with the previously existing situation wherein the pipe line was operated as a department.

Extension of the company's pipe lines into Arkansas made it a common carrier for transportation of interstate oil under the federal law. Discussing the change, Mr. Weller said. "We have had this matter under consideration for some time, and finally decided to segregate its pipe line system from the company's other property because of the fact that we recently purchased the Prairie Pipe Line Co.'s lines in the state of Arkansas. The pipe line purchased by the Standard Oil Co. of Louisiana from The Prairie Pipe Line Co. in the state of Arkansas was organized as a common carrier interstate and was under the jurisdiction of the Interstate Commerce Commission. It therefore became necessary for the line to continue to be operated in interstate commerce. Furthermore, the Standard Oil Co. had recently extended its own lines into the state of Arkansas, and it was deemed desirable to separate its transportation facilities from the company's other properties. The Standard Pipe Line Co., Inc., was therefore organized as a common carrier and will transport crude oil interstate and intrastate.

HOUSTON, Jan. 16.—Magnolia Petroleum Co.'s No. 4 Garcia in the Schoot pool of the Laredo district is an 800-barrel well at 1644 feet.

BARTLESVILLE, Jan. 11.—L. C. Snider, chief geologist of the Empire Gas & Fuel Co., is in New York attending a conference of officials of the Doherty companies.

No Further Progress In Western Florida Wildcat

JACKSONVILLE, FLA., Jan. 13.—There has been no further development at the test in Pinellas county, Fla., near Tampa, which was reported to have a showing of heavy, asphaltic oil. It is understood, however, that the test will be drilled deeper after a test has been made of the level where the showing was reported to have been found, at 3200 feet.

In Polk county, near Auburndale, the Polk County Oil & Gas Co., spudded in their test the first of the year.

In Lee county, south of Fort Myers, the Florida Exploration Syndicate's test in the southwest quarter of 10-45S-26E., which was started in March, 1922, is down about 700 feet. It is being drilled with a rotary and has been shut down a considerable part of the time for lack of material, which was delayed by the impassability of the roads in this low country.

This company has about 250,000 acres under lease and are selling leases at $10 to $12 an acre, with no great amount of lease buying taking place.

Kosse Well Worked Over But Fails To Respond

HOUSTON, Jan. 16.—Humphreys Oil Co.'s discovery well at Kosse, Limestone county, Tex., which went dead about two months ago when efforts were made to increase its production by putting it on air, is still an unsatisfactory workover. Efforts to bring it back resulted last week in its making only a gas and water flow.

It had produced about 200 barrels daily from the Edwards limestone formation at 3750 feet before going dead two months ago, having declined steadily from its high flush showing.

Exports Slightly More

HOUSTON, Jan. 16.—Exporters moved 12,239,927 barrels of petroleum and its products from Mexico in December. This is only slightly greater than the November movement, when 12,085,404 barrels were moved. Only three companies exported more than 800,000 barrels. These were Doheny's Huasteca Petroleum Co., with 3,660,336 barrels; El Aguila, 1,791,870 and La Corona, 1,991,334 barrels.

TULSA, Jan. 11.—E. de Golyer, vice-president of the Amerada Petroleum Corp., is enroute to Europe for a brief business trip.

Montague County Wildcat Rated As 25 to 40-Barrel Pumping Well

By Special Correspondent
WICHITA FALLS, Jan. 13

THOUGH there have been no new developments at the well itself, and the company officials continue to decline to get excited or worked up over the showing, the Gulf Production Co.s No. 1 Worsham, located 14 miles northeast of Henrietta, and about the same distance northwest of Bowie in Montague county, continues to be the center of speculation, both by word of mouth and financially and may be said to continue the most closely watched point in north-central Texas from lack of any sensational developments elsewhere this past week.

The actual status of the well, as far as the present showing is concerned, is a potential 25 to 40 barrel pumper. The sand is deep, around 3400 feet, consequently this production would not justify any undue excitement, except that it is undoubtedly an indication of oil in this section which is about 25 miles from oil production, and is about 15 miles southwest of the big gassers drilled recently by The Texas Co. and the Petroleum Producers, in Montague county.

The citizens of four or five of the small towns in Clay and Montague counties have succeeded in working themselves up to a considerable pitch over the Worsham well and are preparing for a boom. So serious has the rivalry over being called "the oil center" become among some of these towns, that indignation meetings have been held, and protests broadcasted against the claims of the others. The struggle, as far as proximity is concerned, will probably be between Bellevue and Ringgold, with the latter having a few miles the best of the argument.

Already, however, the enterprising townsite promoter has put in his appearance, and if any amount of drilling results from the Gulf's strike, there will be a new oil field town built right at the field, just as has been the case in every other oil field development.

As far as actual developments of bearing on the prospects of opening a new field are concerned, there have been several lease trades made during the past week, indicating more activity. Practically all of the larger companies operating in this section now have large tracts blocked up in this general neighborhood, and the Independent operator class is also well represented. There have been no definite announcements, however, of any new tests to start immediately.

The south end of the territory was unusually quiet this past week, with the abandonments reported from various pools outnumbering the producers.

Stephens county's only new producer reported was in the Curry pool, the Humble Oil & Refining Co.'s No. 4 Curry, lease B, being brought in a 300-barrel producer from the 3170 foot pay.

Eastland county supplied several new gassers, ranging from two to 20 million feet, but all inside locations, in old pools.

One good oil well, from the 3600-foot pay, is reported for the Lake Eastland district, the No. 3 Brown of the Cardinal Oil Co. This well is a 300-barrel producer.

The shallow fields of Callahan and Shackelford counties produced no new wells of any remarkable size, nor extension, though there were about the average number of completions.

The Wichita Falls district shows 17 completions, with 13 of these producers and four abandonments.

Features of the week in this north part of the district included the mile

(Continued on page 62)

Texas Fields' Daily Production

	Jan. 13	Jan. 6
Mexia-Currie	62,000	61,900
Wichita Falls Dist.	58,600	56,650
Ranger, lime	51,650	51,550
Ranger, sand, inc. Young county	15,475	13,650
San Antonio	3,500	3,600
Coastal Texas	113,735	112,788
Coastal Louisiana	6,860	6,705
Totals	311,820	306,843

Completions In North Central Texas District Week Ending Jan. 13

WICHITA FALLS DISTRICT

Company	Well No.	Lease	Depth	Production
Electra				
J. J. Perkins	1	Waggoner, Sec. 33	1800	150
L. P. Hammond	1	Grace Jennings	1800	200
Houston Oil	6	Waggoner	1795	175
Magnolia Petroleum	14	Rio Bravo	1950	150
McKinna & Moore	5	Waggoner	2030	Aband.
W. B. Larkin	6	Burnett	2020	Aband.
Pois, Schultz & Kruger	1	Guthrie	2020	Aband.
J. J. Perkins	12	Burnett et al	700	15
Northwest Clara				
Barkley & Meadows	1	John Hirschi	1866	200
W. M. Moore	1	Foster & Allen	1892	150
North Iowa Park				
The Texas Co	1	Everts	2320	Aband.
Archer County				
Hackman & Sanderson	1	McCall & Sanderson-B	550	40
Kentucky Production Co	2	Taylor-A	1600	100
Scott and Gose	3	Gose	1580	30
Texhoma Oil & Refining	36	Gose	1600	120
Featherstone et al	1	Ferguson	1758	200
Freeman-Hampton Syndicate	6	Ferguson-A	1580	100
Montague County				
Fowler & Cline	1	Quillen	3330	Aband.

GENERAL RANGER TERRITORY

Young County				
Pitzer & West	1	Costello	4140	temp. Aband.
Rhodes Drilling Co	1	Rowe	3940	8 m. gas, (shut in as gasser)
Roxana Petroleum	8	Ford	1930	75
Bertrand et al	4	Whittenberg	1880	50
Casey & Mercier	1	Jeffery	4120	50 bbls. oil, 3 m. gas, after 120 qt. shot
Stephens County				
Humble Oil & Refining	4	Curry B	3170	300 (shot with 80 qts.)
Eastland County				
Cardinal Oil Co	3	J. A. Brown	3600	250
Chapman & Winkle	7	E. Roper	1510	20
Harrison et al	1	Tidwell	3050	1 m. feet gas
Slay, Simon & Smith	1	G. W. Rose	3490	Aband.
Root Drilling Co	1	Seabourn	3100	7 m. gas
Plateau Oil Co	4	C. O. Owens	3040	22 m. gas
Car De Zone Oil Co	1	Hough-B	3060	13 m. gas
Invincible Oil Co	1	Dunn	2460	50 bbls. oil & 6 m. gas
McCamey & Sherrin	1	Johnson	3080	50
Shackleford County				
Jones et al	1	Pritchard	640	15
Spaulding et al	1	Moran Oil & Gas Co	630	10
Stewart & Marshall	1	Pritchard	650	Aband.
Barber et al	1	Cook	610	30
Gilliland & Griffith	1	Carter	490	junked
Chenault Oil Co	7	English	100	temp. aband.
Brainerd Petroleum	3	Poole	640	15
H. & M. Syndicate	1	Terry	460	Aband.
McLean et al	1	Owens	530	15
Chester Stephens	1	Dosser	610	Aband.
Pilgrim Oil Co	1	McLaury	700	Aband.
Wallace et al	6	Waters	550	15
Texhoma Oil & Refining	2	English	600	2 m. gas
Texhoma Oil & Refining	2	Jones	640	15
Texhoma Oil & Refining	4	Jones	660	Aband.
Tucker et al	1	Carter	670	Aband.
Callahan County				
Ramsey & Son	2	J. S. Hart	440	10
Homer Peoples	3	Hughes-A	430	8
Western Oil Corp. & Cohen	4	Joe Newman	360	25
Ilseng et al	1	J. S. Hart	500	15
Johnson et al	2	Warren	290	8
Buckley et al	1	J. H. Ogle	600	Aband.
Fort Ring Oil & Gas	1	Finley	630	Aband.
Betterson & Carroll	1	Slaughter	610	Aband.
Smith et al	1	Yarbrough	600	Aband.
Tarkington & Grace	1	Ramsey	190	Aband.
Brown County				
Canyon Oil & Gas Company	2	Star	1480	6 m. gas
Culberson County				
Consolidated Sulphur Co	1	Johnson	100	Aband.
Pecos County				
Polk Prospecting Co	1	Looney	1230	Aband.
Bowser, Hale & Lamb	2	University	1700	Aband.
Hudspeth County				
Cactus Oil Co	1	Jones	610	Aband.

Robberson Gusher; Burbank Extension Feature Oklahoma Developments

Staff Special

TULSA, Jan. 13

A WEEK of interesting field developments, during which attention has been centered on the Burbank extension well of the Sapulpa Refining Co. and others, and on the large gusher brought in by Nelson Bros. in the Robberson field, was climaxed today by announcement by the Prairie Oil & Gas Co. of a new schedule of Mid-Continent crude prices. Under this schedule, the Prairie announces its willingness to pay 10 cents more for each grade from 28 to 40.9 degrees, and in addition creates a new grade of 41 degrees and over, for which it offers $2.10.

Thus are the rumors, which have been increasingly prevalent for the past two weeks, finally confirmed in fact, at the same time showing that there has been justification for the prediction freely made by Mid-Continent operators that a raise in crude was imminent.

Under the new prices, the lowest offered is $1.00 for oil of 28 degrees gravity and below, as compared with 90 cents heretofore prevailing. The same subdivisions as to gravity are adhered to, each being raised 10 cents in price, and the new grade of 41 and over was added. As compared with the former price of $1.80 for oil of 39 gravity and over, the price set for this new grade constitutes a 30-cent increase, and is 10 cents higher than the price fixed for this grade by purchasers other than the Prairie.

It evidently is the intention of the Prairie to stimulate drilling, and it also appears that the prices formerly prevailing had not had the effect of obtaining for it the high gravity oil it needs. That this was the case has been generally believed in Tulsa. An analysis of the effect on production of various grades under the new prices will be found in another part of this issue.

The big well in the Robberson field, plus a large increase in production in the Tonkawa field during the last week, caused by completion of a number of large wells there within a few days, together with a small increase at Burbank, caused Oklahoma's production to show an increase of 8350 barrels over the average of the preceding week, abruptly halting the decline which has been in evidence for several weeks past. The Robberson well will proably decline rapidly but from this time on, it would appear as if Tonkawa is going to usurp Burbank's place as the gauge by which the state's production rises and falls, as it is increasing rapidly in production and area, while Burbank shows little change from week to week.

Wells Completed

In Oklahoma, during the week just closed, 98 wells were completed, of which 50 were oil wells, 18 were gas wells and 30 were dry holes. This is a considerable increase over last week's figures, which were 72 total completions, divided 41 oil wells, 17 gas wells and 14 dry holes.

Oil wells completed during the past week in Oklahoma, totaling 50, had a total initial production of 13,624 barrels, a large decrease from last week's figures of 16,158 barrels. Average initial production per well this week was 272.5 barrels, as compared with 394 barrels last week.

Oklahoma and Kansas Estimated Daily Average Production

	Jan. 13	Jan. 6
Oklahoma		
Bristow	58,375	58,500
Burbank	83,569	82,894
Cushing Dist.	27,850	28,000
Healdton	17,800	17,800
Hewitt	26,700	27,000
Tonkawa	33,000	33,241
Osage except Burbank	36,700	36,000
Oklahoma general	143,000	135,209
Totals	426,994	418,644
Increase		8,350
Kansas		
Augusta	15,300	15,350
Elbing-Peabody	13,700	13,660
El Dorado	18,000	17,900
Florence Dist.	11,500	11,580
Greenwood	14,500	14,553
Kansas general	13,500	13,600
Totals	86,500	86,643
Decrease		143

Except in Burbank, all wells reported as completed during the week were only of small initial production, thus cutting down the average per well considerably.

Burbank

Although not yet completed, the well of the Sapulpa Refining Co, Dixie Oil Co., et al., gives indications that when completed it will make a good producer, and is being watched very closely by scouts of all companies. It has been the center of interest during the week, as it not only apparently extends the Burbank field two miles or so, but also opens up for development a large territory in Kay county which may result in a new field. Developments in the vicinity will be of interest, as operators will not be under the restrictions imposed upon them by the Osage agency, and it remains to be seen whether operations will be carried on in a different manner than has been in vogue in Burbank proper.

The Sapulpa well, according to last available reports, is flowing 30 to 40 barrels an hour by heads, each head having a duration of two to three minutes and occurring every 12 to 15 minutes. The oil is the same as that found in the Burbank field and the well is generally believed to be in the regular Burbank sand. It got this pay at 2997 feet, steel line measurement, and has been drilled five feet in at present. Early reports that the well had filled up 2700 feet with oil proved to be erroneous, as it had only about 500 feet of oil in the hole at two or three feet in the sand.

After tankage had been erected, the tools were run into the hole to clean out some cavings, the flows mentioned starting when this had been accomplished. Deeper drilling into the sand will in all probability make a big well, as in the Burbank field, the best pay is found at about 25 to 30 feet in the sand, which is from 50 to 80 feet thick.

The correct location of this well is northeast corner SE¼ SW¼ 15-27-5, being 300 feet west of the line dividing Kay and Osage counties. The tract lying east of it is in the Osage and has not yet been sold for oil development. The only direct offset to the well is that to the north and is owned by the Comar Oil Co., a fifty-fifty Marland-Roxana corporation. This company is reported to have made a location offsetting the Sapulpa well, with immediate drilling in mind.

Although this well and the territory surrounding it is outside the Osage, it is interesting to note that it is on land once owned by the Osages, their original treaty with the government having ceded them all the land lying between the 96th Meridian and the Arkansas river. That part of this domain lying between the river and the center of Range 5, through Townships 27, 28 and 29, was afterward sold by the Osages to the Kaws, and became a part of Kay county.

Field Trends Northwest

Extending the Burbank field as it does, this well also indicates further the decided northwest trend taken by production in that field, and, coupled with developments in the field proper, may have the effect of lowering the value placed by prospective bidders on certain tracts to be offered at the next sale. Tracts 15 and 13, comprising the SW¼ of 20 and the NE¼ of 19-27-6, appear to be well on the edge of the field, and may not command as high prices as offsetting tracts sold at the last sale. With the withdrawal of tract 26, on the west edge of the field, as announced by the Osage agency during the week, there are left only four tracts which appear to be in the millian-dollar class. However, by the time this appears in print, the sale will have become a matter of history and the prices paid for these leases will no longer by a subject for conjecture.

Burbank's production registered a small increase during the past week, going from 82,894 barrels to 83,569 barrels, or 675 barrels. This production is being obtained from 792 wells or about an average of 105 barrels daily per well. This increase in production, which is the first shown by the field for several weeks, was due to the completion by the Gypsy and Phillips-Skelly companies of a number of large wells within a few days of each other, thus adding considerable new flush production to the field's total. It is safe to predict that the decline thus halted will again be in evidence next week.

An indication of the east edge of production is seen in the well of the Skelly-Phillips companies, the second location east of the northwest corner of the NE¼ of 29-27-6, a tract which was purchased for $600,000 at the last sale. This well had only eight feet of sand, topped at 2940 feet, and is making only a small showing, with 200 feet of oil in the hole. It is at a total depth of 2948 feet, having drilled through the sand at that depth. A line drawn through this well and others to the southeast of it which also were only small producers indicates that tracts 13 and 15 will be wholly or in part outside the productive area.

Sharing interest with the Sapulpa well during the week was the wild gusher drilled by Nelson Bros. in the Robberson field, Garvin county, in the southern part of the state. This well, which is some-

what of a freak being surrounded by dry holes of equal or greater depth, came in during the early part of the week with a flow estimated at 10,000 barrels daily, and is still making approximately that amount. It is located in the NE¼ SW¼ of 14-1N-3W, and is No. 5 for the lease, which is known as the Olin Jones farm.

This is probably the largest well ever brought in in the southern part of the state, and is easily the largest in the Robberson field to date. It is about a mile west of the 2000 and 3000-barrel wells recently completed by the Texas-Pacific Coal & Oil Co. in Sec. 13, on lands acquired some time ago from the Wrightsman Oil Co., of Tulsa.

The Nelson well topped the sand at 1542 feet, and a fishing job was under way to loosen tools stuck in the hole when the well blew in. A gas well had been expected, and no provision had been made for as great a flow of oil as the well developed. The force of the initial flow was sufficient to blow the tools out of the hole, and sent them together with the control head and gate valve up through the top of the derrick. The night before the oil was struck gas was encountered, which blew the tools 80 feet up in the hole, where they lodged, thus necessitating the fishing job which was under way when the oil came.

After flowing wild through the six and five-eighths inch casing for about 24 hours into hastily thrown up earthen storage, the well was brought under control, with very little loss of oil. It is still going into earthen tanks, formed by damming a dry creek near the well, but the oil is being picked up and placed in tanks, from which it is run by the Magnolia Petroleum Co. The gas pressure is still too great to permit of flowing the well directly into the tanks. The oil is of about 28 degrees gravity, which is the same as the average in the rest of the Robberson field. This has been placed at 75 cents a barrel, under the Magnolia's quotations, but is worth $1.10 according to the Prairie, and no announcement has yet been made by the Magnolia since the latest prices went into effect.

Tonkawa

The large extension wells completed in Tonkawa during the early part of the week, and reported in last week's issue, were followed by other good wells, so that the field is now producing in the neighborhood of 33,000 barrels daily. Probably that is a conservative estimate, as actual figures may show the field to be producing considerably more, when available.

The latest well in the field is the Amerada Petroleum Corp.'s No. 2, located in the southeast corner of the W½ NE¼ 34-25-1W. This well is making 110 barrels an hour in sand from 1950 to 1962 feet, which corresponds to the 2100-foot sand in the southern part of the field. Another good well is the Gypsy Oil Co. No. 3 Evans, in the second location north of the southwest corner of the NE¼ of 10-24-1W. This well started off at 30 barrels an hour in sand topped at 2640 feet and drilled three feet in. It declined rapidly, and is now making 10 barrels an hour.

Depew

The interesting test of the Eastern Oil Co., which found the Wilcox sand in the pool opened up by the well of the Hiram Oil Co., in 8-15-8, has still not been completed, but is showing for a well. This well which is located in the northwest corner of 17-15-8, about a mile southwest of the original Hiram C. Wilson well, has been drilled five feet into the Wilcox sand, which was topped at 3825 feet. The operators are pulling the big pipe today, and expect to drill in within the next day or two. The well has 300 feet of oil in the hole. This well missed the Dutcher sand, which has been productive in other

Completions In Oklahoma And Kansas For Week Ended Jan. 13, 1923

OKLAHOMA

Caddo County

Company	Well	Location	Depth		Initial Prod.
Justice Oil Co	1	NE NE 8-6-13	T.D.2372		Dry

Carter County

Company	Well	Location	Depth		Initial Prod.
Magnolia Oil Co	6	SW NE 27-2s-3w	2743	O.W.D.	40M
Gypsy	4	NE NE 33-2s-3w	2425		20
Carter Oil Co	29	SW NW 15-4s-2w	2352–2355		175
Coline Oil Co	1	NE NE 35-4s-2w	2913–2933		75
Coline Oil Co	12	NE NE 25-4s-2w	2886–2930		30
Gypsy Oil Co	2	NW NE 25-4s-2w	2958		125
Texas Co	11	NE NE 35-4-2	T.D.3260		Dry

Creek County

Company	Well	Location	Depth		Initial Prod.
Tidal Oil Co	3	SW SW 14-16-9e	2995–3005		90
Roland Oil Co	2	SE NE 15-16-9e	2517–2558		35
Transcontinental	2	SE SE 33-16-9e	2940–2955		235
Transcontinental	7	NW NE 34-16-9e	2960–2964		250
Waite Phillips	5	SE SE 13-16-10e	2172		7M
Gypsy Oil Co		NEc SE 8-15-8e	3803–3831		386
Skelly Oil Co	1	NEc 33-14-8e	2465–2512		2
Buel and Bartlett	3	SEc SW 17-18-9e	T.D.2700		Dry
Prairie O. & G	7	33-16-9	2962–2971		355
Prairie O. & G	3	9-15-10	2673–2731		no est.
Prairie O. & G	3	23-16-8	3192–3194		1871
Prairie O. & G	1	23-14-8	T.D.2474		Dry
Prairie O. & G	4	16-14-8	2375–2447		no est.
Wilcox and Oswald	2	NE NE 20-18-10e	T.D.2724		Dry
Galvez Oil Co	1	SEc SW 13-16-8e	T.D.3220		Dry
Lewis et al	2	SW NW 32-16-9e	T.D.540		Dry
Wilcox Oil & Gas Co	2	SEc NE 31-15-8e	T.D.3134		Dry

Custer County

Company	Well	Location	Depth		Initial Prod.
Parker Oil & Gas	1	SE NW 1-15-15W	T.D.4250	O.W.D.	Dry

Garvin County

Company	Well	Location	Depth		Initial Prod.
Concord Oil Co	6	SE SE 11-1-3W	1499		150
Magnolia	4	SW SW 13-1-3W	1605–1682		25
Western Oil Corp	1	SE SE 11-2-3e	T.D.2006		Dry

Grady County

Company	Well	Location	Depth		Initial Prod.
Dickerson et al	1	SW SW 23-5-8	T.D.1326		Dry
Gypsy Oil Co	1	SW NE 14-4-8	1478–1490		35M
Crump & Beard	1	SW NE 23-5-8	1278–1344		24M
Atlantic O. Prod. Co	1	NW NW 25-5-8	1447–1451		12M
Little Nick Oil Co	1	SE SE 26-5-8	1333–1422		31M

Leflore County

Company	Well	Location	Depth		Initial Prod.
Suppes Oil Co	1	SEc NW 17-10-26e	1835–1855		5M

McIntosh County

Company	Well	Location	Depth		Initial Prod.
W. B. Pine	1	SEc NE 20-12-14e	645–707		¼M
F. M. Long	1	SE SW 33-12-14	1630–1660		3M

Muskogee County

Company	Well	Location	Depth		Initial Prod.
M. C. Cells	1	NE NE 1-14-15	1601–1613		35
M. L. Carr	32	SE NE 34-15-14	2129–2142		15
J. L. Slucher	2	NW NE 27-15-16	1560–1595		2M
W. Wilson	2	SWc NW 21-12-14	T.D.2695	O.W.D.	Dry

Okfuskee County

Company	Well	Location	Depth		Initial Prod.
Independent & Kirkbride	1	SEc NE 27-13-10e	2709–2725		30
Scott and Levy	2	NW NE 4-12-11e	2652–2672		150
Pals Oil Co		NWc NE 15-11-11e	2689–2691		60
J. J Deaner	1	SW SE 15-11-11e	2689–2691		60
Gypsy and Empire	4	SW NE 2-10-9e	3059–3082		100
Indiahoma Oil Co	1	SWc SE 25-10-11e	3072–3099		100
Independent Oil Co	1	SE SE 15-13-8e	T.D.4142		Dry
Atlantic Oil Co	1	NE NW 2-10-11e	T.D.3845	O.W.D.	Dry

Okmulgee County

Company	Well	Location	Depth		Initial Prod.
Shuler and Fisher	4	NW NW 30-16-13	1460–1482		5½M
W. B. Pine	2	NE NW	2375–2403	O.W.D.	75
W. B. Pine	3	NE NW 3-11-12e	2663–2666		6M
Kingwood Oil Co	3	NE SE 33-13-13e	T.D.3211		Dry
W. C. Newman	1	SW NW 30-12-12e	T.D.2621		Dry
A. G. Hazlett	6	SW SW 5-13-15	2697–2717		75
Oklina	1	NW SE 16-14-14	1767–1778		15

Osage County

Company	Well	Location	Depth		Initial Prod.
Oklahoma Natural Gas	615	NW NE 28-20-12e	1632–1639		16M
Franchot et al	1	NW NW 11-21-9e	2304–2319		20
Fitzgerald & McCune	1	NE SW 16-21-12e	1407–1420		5
Marland Oil Co	5	SW NE 13-22-8e	2653–2658		20
Okla. P. & R. Corp	16	SW SW 9-23-8e	2330–2350		20
Choctaw Oil Co	2	NW 16-29-10	1737–1767		10
Riverland et al	1	CEL NW 34-23-8			350
Marland Oil Co	15	CNL NW 34-25-9	2121–2138		24
Comar Oil Co	2	SW SE 12-22-8	T.D.2870		Dry
Okla. P. & R.	14	NE SW 8-23-8	T.D.2936		Dry
Owen-Osage	229	NE 2-27-10	T.D.865		Dry

Osage—Burbank

Company	Well	Location	Depth		Initial Prod.
Phillips-Skelly	15	NE SW 19-26-6e	2886		1300
Gypsy Oil Co	13	NE SE 19-26-6	2897–2967		600
Gypsy Oil Co	14	NE NW 29-26-6	2900–2976		1200
Gypsy Oil Co	15	NE NW 29-26-6	2900–2975		1500
Phillips-Skelly	9	NE SW 24-27-5	2930–2998		900
Gypsy Oil Co	12	NW NE 24-27-5	2929–3010		1500
Phillips Pet. Co	2	NE SE 26-27-5	2920–2945		15M
Cosden & Co	3	SE SW 8-26-6e	2863–2912		100
Carter Oil Co	15	SE SE 8-26-6e	2805–2870		167
Carter Oil Co	8	SE SW 9-26-6e	2838–2905		65
Phillips Pet. Co	9	NW NE 29-26-6e	2919–2964		300
Phillips-Skelly	10	NW NE 29-26-6e	2919–2964		350
Phillips-Skelly	7	NW NE 30 26-6e	2910–2970		350
Phillips Pet. Co	7	SE SW 19-26-6e	2913–2978		1700

Pawnee County

Company	Well	Location	Depth		Initial Prod.
Watchorn Oil Co	7	SEc SW 33-23-3e	1720–1722 2766–2772		10M 300
Watchorn	1	NEc SE 17-20-6e	3044–3064		50
Sheltz et al	1	SE SW 19-20-8e	2495		200
National Exploration Co.	1	NEc SW 1-22-3e	T.D.3850		Dry
Steinberger and Smith	1	SEc NE 31-20n-7e	T.D.2620		Dry
Davis and Johnson	1	NEc NW 26-20-8e	T.D.3235		Dry

Payne County

Company	Well	Location	Depth		Initial Prod.
Cosden & Co	3	SE SW 27-19-4e	3748		120

Stephens County

Company	Well	Location	Depth		Initial Prod.
Coline Oil Co	1	SW SW 33-1-8	2052–2057		40
Magnolia	4	SE NW 25-1-9	1763–1773		7M
Lone Star Gas Co	3	CSL NE 29-1-9	2250		4M
Carter Oil Co	2	SW SE 20-1-8	2277–2295		120
Wade et al	1	NW NE 12-1-6	T.D.2764		Dry
Empire Oil Co	16	NE SE 32-1-8		O.W.D.	Dry
Gent et al	1	SE NW 1-1-6	T.D.3200		Dry
Lone Star Gas Co	1	NE NE 8-2-6	T.D.2899		Dry
Magnolia	1	NE SE 26-2-6	T.D.3740		Dry

Tulsa County

Company	Well	Location	Depth		Initial Prod.
Mays Bros	1	SEc NE 2-18-13e	T.D.2126		Dry
Thomas et al	4	NE NE 36-18-12	1711–1720		4M
Weber et al	2	SE SW 12-18-12	T.D.2187		Dry

Waggoner County

Company	Well	Location	Depth		Initial Prod.
Melba Oil & Gas Co	4	SW SE 15-16-15e	T.D.1265		Dry

Washita County

Company	Well	Location	Depth		Initial Prod.
Empire Oil Co	1	SWc SE 25-12-14	T.D.3500		Dry

wells in the vicinity, and was drilled on down. Another well in this locality which missed the Dutcher and is going on down in search of the Wilcox, is that of Waite Phillips, in the southeast corner of the SW¼ NE¼ of Sec. 5, about a mile and one half northeast of the Eastern well. Successful completion of this well may result in the opening of a large Wilcox sand pool.

Wetumka

In the Wetumka district, Hughes county, several recent wells indicate that a real pool is going to develop as a result of the discovery drilled some time ago by the Prairie Oil & Gas Co., and activities there are being followed with much interest. The Prairie's test on the Rennie farm, in the SE¼ NW¼ of 5-9-10, is a 700-barrel well in the Wilhoit sand, topped at 3408 feet, and drilled into only a few inches. This well is about a quarter northwest of the Prairie's discovery well in the SE¼ of Sec. 5.

The Indiahoma Refining Co. No. 2 Hull offsetting the new Prairie well on the east, and located in the southwest corner of the W½ NE¼ of 5, is making 500 barrels, also in the Wilhoit sand, found at 3403 feet. This company's No. 1 on this farm, located in the southeast corner of the 80-acres, is drilling below 3250 feet, after having been delayed with water troubles.

The Independent Oil & Gas Co., which is reported to have paid something like $3,000 an acre for its lease in this field, is drilling in the northwest corner NW¼ NE¼ of 8, a little more than a quarter of a mile south of the discovery well. This test has 15 million feet of gas and is spraying oil in sand toped at 3403 feet The Prairie No. C-1 Gregory, in the NW¼ SE¼ of 5, which is on the same forty acres as the discovery well, is pulling the big pipe preparatory to drilling in, and is on the top of the sand at 3415 feet.

Oil from this particular pool is of about 42 gravity, and undoubtedly great activity is in prospect for the vicinity. The Prairie and Indiahoma have completed pipe lines into the field and others are on the way.

Haskell Interests Survey For Railway In Montana

CASPER, Wyo., Jan. 13.—Surveying parties are now at work selecting the route for the railway which the Montana Railway Co., recently chartered by the C. N. Haskell, or Middle States Oil Corp. interests propose to build from the Salt Creek district to Miles City, Mont., or other point on the Chicago Milwaukee & St. Paul Railway. The latter railway is reported to have made a rate agreement with the new company which will enable it to operate with profit.

The Haskell interests plan to enter both the oil and the coal business in Wyoming and Montana and this railroad project is considered a step preparatory to the other ventures. C. J Haskell is president of the railway company, and other officers are Scott Ferris, former member of Congress from Oklahoma, W. E. Allaun, J. Sherry O'Brien and P. D. Saklatvala, the latter being president of the Middle States.

Navarro County Well Shows Water; Lease Trading is On The Increase

HOUSTON, Jan. 14.—Corsicana Deep Wells Co., No. 3 Burke discovery of the Powell deep pay in Navarro county was reported Jan. 14 making 47 per cent water out of a total flow of 350 to 400 barrels. The previous day it was reported making three per cent water. Advices did not indicate whether the water was fresh or salt, but as there are several hundred feet of open hole it might be either.

In case the well is near the edge of the structure, which possibility is indicated by the thinning of upper formations such as the Austin Chalk in comparison with Mexia and Currie-Wortham development southward; the probability would be salt water from the side or bottom. On the other hand the open hole made possible the entrance of fresh water from above. The Austin Chalk, which is a geological marker in this area was 80 feet in thickness and topped at 2410 feet in the Powell well, about 200 feet lower than normally found in the Currie-Wortham and Mexia developments. Also its thickness of only 8 feet indicated a considerable thinning from the normal thickness of several hundred feet in the productive areas of the other fields mentioned.

Lease trading adjacent to this well in the hitherto shallow Burke gas pool, near the town of Powell, Navarro county, shows constantly gaining momentum. Immediately after the discovery early in the week such sales of acreage as there were had been made at $100 to $500 an acre bonus. Since then a few sales are reported as high as $1000 per acre.

The discovery well, which was previously reported in **National Petroleum News** Jan. 10 is still rated at a maximum of 700 barrels daily at a total depth of more than 2950 feet, presumably in the Woodbine sand. Earliest tests of the crude indicated it was of silghtly higher gravity but it is now rated as testing 28.7 degrees Baume. It is a heavy black oil testing four tenths of one per cent B. S. and shows a temperature of 82 degrees Fahr.

Although producing at the approximate level of the Currie-Wortham district wells in the southern part of Navarro county the oil from the latter tests 40 gravity and upwards in contrast to the somewhat lower test of Mexia which is found from 3000 to 3080 feet. The old shallow oil found at Powell from 400 to 480 feet below sea level classified as heavy crude and was much lower in gravity than the present production.

As pointed out in the Jan. 10 issue of **National Petroleum News**, the so-called Burke or Powell pool located seven and a half miles southeast of Corsicana, is on the most pronounced fold in that area. It is not certain, however, that the influence of faulting such as was found at Mexia and in the Currie-Wortham development does not influence accumulation.

A number of test wells in virtually all directions have drilled past the Woodbine Sand level in the general area, but in every case they are far enough removed to permit of a narrow strip remaining untested except for the discovery well on such narrow fault-line structures as were found at Mexia and the Currie-Wortham pool.

Three miles east of Corsicana, the Poor Farm test of the Compass Oil Co. was shut down at 3180 feet. Nine miles south of the discovery Erwin et al drilled to 330 feet in No. 1 Ralston. Five miles south of the discovery Humphreys Oil Co. failed in No. 1 Singleton which was drilled to 3687 feet. Five miles north of the discovery Gilbert Johnson & Co. had salt water at 3180 feet and other scattered wells were without satisfactory indications.

Should faulting follow a northeast-southwest course past the discovery after similar conditions to those existing 30 miles southward at Mexia, there would remain in between these tests room for development of similar elongated and narrow fields such as that and the Currie-Wortham development.

Meantime Corsicana Deep Wells Co. has made two offset locations to the discovery; Simms Oil Co. has purchased 24 acres out of the J. H. Burke tract for $24,000. Roxana Petroleum Co. bought 61 acres east of the well from S. F. and Albert Brown at $700 an acre, Sant Brown for a total consideration of $57,500.

Humphreys Oil Co. has made location for a well on The Odie Burke 50 acres 600 feet from the discovery well; Amerada Petroleum Corp. has blocked 2000 or 3000 acres of outlying stuff and most principal companies who play Texas fields have more or less close-in protection some of it. currently purchased from $100 to $500 an acre. These include the Texas Co., Gulf Production Co. and Humble Oil & Refining co.

New Map Of Tonkawa

BARTLESVILLE, OKLA., Jan. 13.—A field map of the Tonkawa oil field in Noble and Kay counties, Okla., showing the locations, well numbers and elevations of all wells completed and now drilling, has been prepared by the Bartlesville, Okla., station of the Bureau of Mines. In addition, this map shows the names of lessors and lessees and gives data on pump stations and storage tanks, revised as of Jan. 1, 1923. Because of the great activity in this field, this map, it is thought, should be of especial interest to the oil industry at this time. Copies of the map may be obtained from the Bartlesville, Okla., Chamber of Commerce, a charge of 25 cents being made to cover the cost of printing.

LOS ANGELES, Jan. 13.—Giving up hopes of receiving reasonable concessions in the way of prices from the Southern Counties Gas Co., the city of Long Beach plans to go into the business of distributing natural gas from the Signal Hill oil wells, right at its door, to its residents, both domestic and industrial.

Agree Not To Make Production Test Of Salt Creek Immediately

By Special Correspondent
CASPER, Jan. 12

DELAY in making the general test of the Salt Creek field to establish productivity of wells as the basis for prorating, is postponed until no definite date. This postponement came as the result of the adoption of the report of the Conservation Committee of the Salt Creek Producers Association, held here Jan. 10.

It will be recalled that the first of this year the proration of the Salt Creek field was reduced from 40 per cent the rated capacity of the wells to 20 per cent with the view, as then stated, of making the new test after field storage should have been cleared up.

The committee's recommendation, which was adopted as part of the report, was that present weather conditions are against a test and that such test would merely determine the amount of decline of wells since the test a year ago.

The meeting was held in the Henning hotel with B. B. Brooks, representing the Consolidated Royalty Oil Co. and the Western Exploration Co., as chairman.

E. L. Estabrook, production engineer of the Midwest Refining Co., spoke on the subject of gas conservation in the field, emphasizing that gas is the lifting power and that conservation at this time means lower production costs and greater ultimate recovery of oil. The committee proposed that another meeting be held in March and that A. W. Ambrose, assistant director of the Bureau of Mines, be asked to attend this meeting when fuller discussion of gas conservation plans will be had.

Other oil company representatives present besides Ex-Governor Brooks, were: Wyoming Associated Oil Co., Midwest and Salt Creek Consolidated, John T. Barnett; Chappel Oil Co. and Mutual Oil Co., M. T. O'Donnell; Western States Oil & Land Co., M. T. Rathvon; Continental Oil Purchasing Co., W. H. Ferguson; Marine & Glenrock, Western Pipe Line Co., Max Ball; Carter Oil Co., W. T. Funk; Royalty & Producers Corporation, Utah Oil Refining Co., J. E. Bramwell; E. T. Williams Oil Co., E. T. Williams; Empire State Oil Co., H. D. Curtis; Staley Syndicate, F. B. Hoffer, M. J. Foley; Fensland Oil Co., Pacific Oil Co., Hardrock Oil Co., J. C. Peters; Midwest Refining Co., E. L. Estabrook and R. S. Ellison; Texas Co., D. F. Connelly; Bureau of Mines, R. C. Patterson.

The companies not represented were: Sinclair-Wyoming Oil Co., the Bessemer Oil Co., Wyo-Kans Oil Co., The Texas Production Co., New York Oil Co., Producers & Refiners Corp., Kasoming Oil Co., Schuster Bros, Kinney-Coastal Oil Co., Duthie Oil Co. and the Gates Oil Co.

The Ohio Oil Co. had no representative present but sent a letter stating reason for not being officially represented.

The report of the Salt Creek Conservation Committe in part follows:

Recommendations Followed

"On Oct. 4th a circular letter was mailed to each producing company known to be interested in the Salt Creek field, setting out in detail the agreement reached at the conference on Sept. 20, to the effect that no new wells would be started by any operater after that date, and that all drilling operations should be shut down on Dec. 1, 1922, and not again resumed until May 1, 1923, except in both cases as in such instances the committee might approve and authorize.

"In this letter a request was made that any producer feeling that the agreement of Sept. 20, 1922, was not being fully and fairly carried out by any other producer would furnish the committee, confidentially and for its information only, a full statement of the facts. The agreement has, however, been so universally observed by the producer both in letter and spirit that only one or two complaints have been received from producers in accordance with this suggestion. In each case reported the facts were fully and impartially investigated, and it is believed that in each case the matters complained of were adjusted to the satisfaction of all concerned.

"At a meeting on Oct. 16th, your committee decided that it would be advantageous to employ a practical field man to keep in touch with operations and act as the representative of the committee in the field. M. J. Foley accordingly was employed in the capacity of supervisor. Mr. Foley consented to devote a large amount of his time to this work and his duties were defined as follows:

"1. To see that the amount of oil taken by the pipe lines is fairly distributed among all producers.

"2. To keep closely in touch with drilling operations in the field to the end that the committee may be promptly advised in the case of the failure of any producer to carry out the terms of the agreement reached at the producers' meeting of Sept. 20, 1922.

"3. To co-operate with the different producing companies with the idea of working out with fairness and equity the policies of conservation agreed upon by the producers.

"It was also decided to compensate the secretary for time devoted to the Committee's work. L. L. Aitken offered to advance, and has advanced, the funds necessary to carry on the work of the committee until the present meeting of producers, at which time the disposition of the producers in regard to the matter could be learned.

"Certain changes in the existing regulations in regard to the production of oil in the field have been recommended from time to time by the committee to the pipe line companies, and in every case the committee found the pipe line companies entirely agreeable to the suggestions made.

"On Nov. 8 a meting of your committee was held in Denver at which time representatives of the pipe lines and refineries serving the Field were invited to meet with the committee. The following representatives of the pipe line companies were present at this meeting: R. S. Ellison, Midwest Refining Co.; E. J. Sullivan, Central Pipe Line Co., and Max W. Ball, Western Pipe Line Co. The following representatives of the refineries were present: R. S. Ellison and T. A. Dines, Midwest Refining Co., and F. W. Freeman, The Texas Co.

Adjustment of Pro Rata

"It appeared that the Midwest Refining Co. was, at the time, taking a pro rata production of 30 per cent from the field, while the Central Pipe Line Co. was taking a pro rata of 50 per cent. After considerable discussion as to how this difference might be adjusted with fairness to all parties concerned, it was suggested that the pipe line and refineries' representatives meet separately and endeavor to reach an agreement and then advise the committee of the result. This procedure was followed and on Nov. 10 the pipe lines advised your committee that, until further notice, it had been agreed to take 40 per cent of the aggregate settled production from a lease; that this had been determined by the acceptance of an estimate of a potential production of 200,000 barrels per day and a demand of 80,000 barrels per day, and should the potential production be determined to be otherwise, the 40 per cent figure would be changed to conform. This pro rata of 40 per cent has been continued in effect until it was reduced temporarily to 20 per cent on Jan. 2, 1923.

The matter of a general test of the field has been discussed by the committee at considerable length. After going over the matter pro and con and availing itself of the benefit of the views of a number of producers, the committee is prepared to recommend that no test be held at this time. It was influenced in reaching this decision particularly by the inclement weather conditions existing at this time, and the belief that a test would merely determine the amount of the decline of wells since the previous test, and that this decline would be to a great extent the same, and tend to equalize itself among different producers.

"At the request of the committee, E L. Estabrook, production engineer of the Midwest Refining Co. has submitted a tentative, suggestive plan for future drilling in the field. At the request of the committee, Mr. Estabrook will, in the near future, mail a copy of this plan to each producer.

Your Committee Recommends

"1. That the next meeting of the producers be held March 7, 1923.

"2. That your committe be continued until the next meeting above mentioned.

"3. That each producer be requested to pay to committee for the purpose of carrying on its work the sum of $2.00 per month per well, from Oct. 1, 1922.

"4. That a general test of the field be not held at this time, and the question of such a test be postponed until the next meeting of the producers.

"5. That the question of an equitable plan for drilling be taken up for discussion and decision at the proposed meeting on March 7, and that each producer be requested to come to the next meeting prepared to discuss and act upon this subject."

Coming Of Another Pool Of Light Oil Forecast

CASPER, Jan. 13.—Possibility that another pool of high grade oil will be found in Wyoming is indicated by the performance of the joint test of the Carter Oil Co., Western Exploration Co. and the Consolidated Royalty Oil Co. on the Hilly Creek structure in 17-48-82, Johnson county, about 40 miles north of Salt Creek. This well blew in Tuesday with estimated flow of 50 million feet of wet gas from the top of a sand considered the equivalent of the Second Wall Creek. It is 3185 feet deep.

This test has been drilling throughout the year, experiencing various delays. The operators plan to start a second test in the near future.

Smackover Pool Appears Past Its Peak; Wells Reach Pumping Stage

SHREVEPORT, Jan. 15

TWO phases of the field situation at Smackover hold the attention of South Arkansas operators. One is the unsatisfactory results showing up in the area around 4-16-16, where the light oil discovery well was drilled. The other is the continued decline of wells in the older heavy oil development, where many of them now have entered the production phase where it is necessary to pump them.

Simms Oil Co., one of the original developers of the field, is taking the lead in construction of standard rigs to pump and others whose wells have gone "dead" will find similar steps necessary to exploit them. Comparative production figures for the weeks ended Jan. 6 and December 31, which are subjoined, give a detailed index to that situation.

In 33-15-16, a section immediately north of that where the light oil discovery was completed in 4-16-16 the No. 1 LeRoy well of Pat Marr et al was the latest sensation at Smackover. When it was completed 10 days ago, the well was rated good for 8000 barrels daily, but flow line test Jan. 6 showed it making 600 barrels, all bad stuff. Such stuff grades 28 gravity at 72 Fahr. and the oil which was settled out tested 26.5 at 50 Fahr.

The Marr well, which was on acreage reserved when The Texas Co. took over from him the leases surrounding the light oil discovery had been the only completion of satisfactory initial character after completion of the two R. S. Saxon wells sold by Marr to The Texas Co. and the Clark & Melat well on the C. L. Saxon tract, which was sold to the Pan-American Petroleum Co. along with adjacent acreage. The two Texas Co. wells, acquired from Marr are now producing 2500 barrels combined production and the old Clark & Melat well remains shut in.

South of The Texas Co.'s R. S. Saxon wells and beyond an 80-acre C. L. Saxon tract which was an original lease of The Texas Co., Livingstone Oil Corp. had a virtual failure in 4-16-16. This is in the direction of the Clark & Melat well from the discovery period. The Danciger interests are drilling in shale at 2100 feet, or roughly 100 feet below the normal pay level, in No. 2 Saxon, in the northwest corner of the northeast of the southeast of 4-16-16 B-1 Saxon, on the old Clark & Melat lease in the northwestern corner of the southeast of the southwest of the same section is bailing to test 51 feet of broken formation from 2020 to 2071 feet.

In Sec. 5, Gulf Refining Co. of Louisiana is drilling in gumbo at 2125 feet. In Sec. 9 Hickman et al are drilling out cement plug at 1896 feet in No. 1 Meekin. In Sec. 21, Crawford & Sebastian are drilling in gumbo at 2590 feet. Reliance Drilling Co. had only a showing of oil and gas at 2020 feet in No. 1 Meekin in the northwest corner of the northeast of the northwest of Sec. 9. It is bailing to test 51 feet of broken pay above that level.

Three miles west and a half mile north of the Marr et al Leroy well, the El Dorado Union Oil Co.'s No. 1, Legrone in 36-15-17 set liner at 1947 feet preparing to bail after getting a small gas showing. This test is also 12 miles east by four miles

By Paul Wagner

STAFF REPRESENTATIVE

In two recent issues of National Petroleum News, maps showing the territory discussed in this article were published. The first one, pertaining to the heavy oil development, appeared in the issue of Nov. 23, pages 28-29. The map of the light oil territory to the southwest of the original pool was in the issue of Dec. 6, page 25.

south of the Lester-Halton discovery in 13-15-15 that two years ago drew attention to development southwest of Camden, Ark.

The Hunter well on the Lester & Haltom acreage was taken over by the Standard of Louisiana which with the Arkansas Invincible Oil Corp. holds extensive acreage surrounding it but which has never shown satisfactory results.

The Hunter well, however, did lead to small development southwestward in Columbia county. There the Ohio Oil Co.'s No. 1 Tidwell in 20-15-19 extends Columbia development two miles to the east and in the direction of the Hunter well, which is four and a half miles east by one and one-half miles north of the Ohio's completion. The Ohio's well will make a 75 barrel pumper at 2075 feet.

These developments must be considered separately and distinctly from Smackover, but have their general interest in connection with the latter because of relative proximity. In some respects they are characteristic of the spotted nature of the old Caddo, Louisiana, development, without having as a whole shown any definite promise of its good operating points.

Considering then the unsatisfactory results of nearly a dozen wells in the Smackover light oil territoy which forecast the necessity for fairly extensive operations before satisfactory development conditions are found, attention reverts back to the Smackover heavy oil territory.

There, in the period from Dec. 31 to Jan. 6 was indicated a further decline in

Exploited Production by Wells as of Dec. 31, last, and Jan. 6.

Standard Of Louisiana, Owned Production

		Dec. 31	Jan. 6
Standard Oil Co. of Louisiana			
Johnson 1 & 4		2120	1566
Murphy "B" 1, 3, 4, & 5		1760	1800
Murphy "B" 2 & 6		370	262
Umstead 1		190	120
Forch 4		240 (3&4)	249
Umstead B-1			80
Run By Standard For Others			
Bailey & Murray			
Rhoten 1		250	500
Harry Morris			
Laney 1		1000	1100
North American Oil & Refining Corp			
Laney 1		4607	5000
Gulf Refining Co. of Louisiana			
James 1		2215	.....
Simms Oil Co.			
J. E. Murphy 1 & 4		1842	1000
Alfred H. Ramage			
James 1		3500	3000
Other Companies Run By Others Than Standard			
Imperial Oil & Gas Co.			
McLanahan 1			6000
Arkansas Natural Gas Co			
Laney 1 to 4		1150	1000
Baker & Deane			
Laney 1		175	175
Duho Oil Co.			
McKenzie 1 to 3		Shut in	Shut in
McPhail Oil Co.			
Laney 1 to 4		Shut in	Shut in
Bradstreet Oil Co.			
Poole 1 & 2		3000	2000
Poole A-1		200	250
Laney 1 & 2			500
E. L. Smith et al.			
Bradley 1		300	200
E. M. Jones et al.			
Laney 1		1000	1000
Empire Gas & Fuel Co.			
Laney 1 to 3	(2)	2000	4500
Laney A-1		1000	1000
Bradley 2			.....
Forrest Oil Co.			
Goodwin 1 to 4	(1&2)	500	2500
Lewis 1 & 2		500	3000
Lewis B-1		500	100
Gulf Refining Co. of Louisiana.			
Johnson 1 to 4		400	2000
Umstead 1 to 4		2600	2500
Goodwin 1 to 3		75	50
James 1		9785	4500
Primm 1, 2 & 4	(1)	Shut in	Dead
Forch 1		65	60
Alphin 1			15
Houston Oil Co. of Texas.			
Cunningham 1		190	165
Laney 1 to 4	(1to3)	9000	10,000
Murphy 1		150	160
Primm 1 & 2	(1)	750	1100
H. Hirsch, Trustee.			
Fee 1		Dead	Dead
Humble Oil & Refining Co			
Arnold 1		50	50
Berg A-1		1800	1000
Berg B-1		75	100
Hirsch 1 & 2	(1)	75	100
Hildebrandt 1 to 3		700	700
H. Laney 1 & 2	(1)	300	120
F. A. Laney 1		1000	700
Flanagin 1			Shut in
Pure Oil Co.			
B. T. Laney 1 to 3			Dead
F. A. Laney 1		821	.....
Jackson-Workman & Royal Refining.			
McDonald 1 & 2	(1)	250	700
Neil Scroggins.			
McKenzie 1		75	200
Pure Oil Co.			
Bristol 1 & 2			2500
Olvey et al.			
McDonald 1 & 2		Shut in	Shut in
Robert Edmonds et al.			
McKenzie 1 to 4	(1)	1000	4000
Roxana Petroleum Corp.			
Murphy 1 to 3		575	2400
Laney 1 & 3		500	1500
Bennett 1 & 2		1500	1900
Skinner et al.			
Berg 1		15	15
Sinclair Oil Co. of Louisiana.			
Laney 1		65	60
F. A. Laney 1		500	500
Linahan 1, 2 & 4	(1)	2500	2500
Sun Company.			
Johnson 1		1000	1000
Simms Oil Co.			
McKenzie 1 to 4		WOSR	WOSR
McKenzie A-1 to A-4		WOSR	400
F. A. & B. T. Laney 1 to 4		WOSR	WOSR
F. A. Laney A-1		108	30
F. A. Laney B-1		WOSR	WOSR
F. A. Laney C-1 & C-2		Dead	Dead
F. A. Laney D-1		25	35
D. S. Laney 1 & 2		1000	400
Hirsch 1 to 4		4100	4100
Goodwin 1 to 4		57	500
T. Murphy 1 to 4		400	330
N. Murphy 1 & 2		617	160
Texas Pacific Coal & Oil Co.			
Laney 1 & 2		1100	1000
The Texas Co.			
McKenzie 1 & 2		3000	1000
Saxon 1 & 2			2500
V. K. F. Drilling Co.			
Richardson 1 to 3		3000	2500
Strahan & Robertson.			
Rodgerson 1		Shut in	Shut in
Woodley Petroleum Co.			
Richardson 1 to 3		500	500
Gladys Belle Oil Co.			
Laney 1		50	2500
Vitex Oil Co.			
Laney 1		400	400
Pat Marr et al.			
Lecroy 1		Shut in	Dead

Note—WOSR signifies Waiting On Standard Rig to pump.

flush possibilities of the wells, the "edge" having gone off production in the case of such as had not felt their injection into the mortality column.

Reference to the earthen storage oil tabulation herewith and which is brought down only to December 20 last, gives a fair index to production results prior to that time. Steel storage stocks are also of equivalent date, but in conjunction with the later production comparisons give the reader a visualization of conditions.

Steel storage stocks at Smackover were confined to the Arkansas Natural Gas Co., with 111,174 barrels at the O'Rear tank farm; and the Simms Oil Co., with 109,000 barrels at its Ferguson tank farm and 60,027 barrels at its Houston tank farm.

Work has been going ahead steadily but the latest field check on progress showed that on Dec. 20 that Bradstreet Oil Co. had the first ring raised on its first steel storage tank at the Cook tank farm; grade had been made and steel was on the ground for No. 2 and No. 3 was a grade.

Simms Oil Co. had completed two steel tanks at the Houston farm, a third was being roofed, the second ring had been raised on another, bottom was in place for a fifth and two others were grades.

Standard Oil Co. of Louisiana was grading for one steel tank at its Smackover pipe line station. Amerada Petroleum Corp. had raised first ring on one tank in the southwest of the southeast of 13-15-16 and grade was completed for a second. Fred M. Lege, of Dallas, had grades ready for three tanks on the Lege farm and three others in stages of construction from the laying of the bottom to the raising of the third ring.

Additional loading rack construction included that of the Royal Refining Co., consisting of E. E. Schock and associates; Roxana Petroleum Corp., arm of the Royal Dutch-Shell interests, had spur graded; Gulf Refining Co., of Louisiana, had completed its rack and was waiting on tracks from the Missouri Pacific railroad and the Gulf's Rock Island rack was about 50 per cent completed.

Railroad shipments from loading racks adjacent to the field have continued to be small in comparison with the daily average production of the field and the quantities of oil moved from the well to earthen storage either adjacent to the wells or to the vicinity of loading racks.

The shipments for the period mentioned remain fairly representative of the succeeding two weeks, but, of course, are not identical. In the 10 days ended Dec. 20, the Continental Consolidated Pipe Line Co. moved 13,408 barrels in tank cars; the Atlantic Oil Producing Co., 920 barrels; the Globe Petroleum Co., 4805 barrels; Bradstreet Oil Co, 194 barrels; Roxana Petroleum Corp., 6520 barrels and the Simms Oil Co., 17,867 barrels.

As an index to earthen storage oil at Smackover, the accompanying table, as of Dec. 20, last, gives the quantity held by various companies and the condition of the stocks:

Smackover Earthen Storage

Owner	Farm	Section	Under 2% bad stuff	Gross
Standard of Louisiana				
	Johnson	29-15-15	None	30,000
	Murphy	29-15-15	None	65,000
Arkansas Natural Gas Co.				
	Laney	31-15-15	None	5,000
Baker & Deane				
	Laney	30-15-15	None	4,500
Berry & LeGrande				
	McKenzie	36-15-16	None	140,000
	Laney	31-15-15	None	115,000
	Bradley	30-15-15	None	3,000
Re fiGulfning Co. of Louisiana.				
	Johnson	29-15-15	None	5,000
	Umstead	32-15-15	15,000	15,000
Robert Edmonds et al.				
	McKenzie	36-15-16	None	230,000
Roxana Petroleum Corp.				
	Murphy	28-15-15	None	70,000
Simms Oil Co.				
	J. E. Murphy	28-15-15	None	66,500
	T. Murphy	29-15-15	None	71,680
	Goodwin	29-15-15	None	97,150
	McKenzie	36-15-16	None	65,000
	McKenzie "A"	36-15-16	None	3,750
	Hirsch	31-15-15	72,000	72,000
	D. S. Laney	31-15-15	55,000	55,000
Texas Pacific Coal & Oil Co.				
	Laney	31-15-15	None	28,000
	Arnold	23-15-16	3,000	3,000
V. K. F. Drilling Co.				
	Richardson	29-15-15	None	95,000
Woodley Petroleum Co.				
	Richardson	29-15-15	None	125,000
H. Hirsch, Trustee.				
	Fee	25-15-16	None	1,500
Humble Oil & Refining Co.				
	Hildebrandt	28-15-15	None	7,000
	Berg	30-15-15	None	1,200
	H. Laney	31-15-15	None	30,000
	F. A. Laney	31-15-15	None	10,000
Arkansas Chief Oil Co.				
	Laney	36-15-16	None	30,000
Bradstreet Oil Co.				
	Poole	25-15-15	190,000	190,000
Bailey & Murray				
	Rhoten	32-15-15	12,000	12,000
Tomlinson Oil Co.				
	Laney	31-15-15	35,000	35,000
E. M. Jones et al.				
	Laney	31-15-15	70,000	70,000
Sun Company				
	Johnson	30-15-16	25,000	25,000
The Texas Co.				
	McKenzie	36-15-16	2,000	2,000
Forrest Oil Co.				
	Lewis	36-15-16	10,000	10,000
	Goodwin	29-15-15	None	2,500
Harry Morris et al.				
	Laney	31-15-15	70,000	70,000
Empire Gas & Fuel Co.				
	Laney	36-15-16	10,000	10,000
Olvey et al.				
	McDonald	1-16-16	125,000	125,000
Sinclair Oil Co. of Louisiana				
	Linahan	36-15-16	210,000	210,000
Newton et al.				
	Poole	25-15-16n	22,000	22,000
Pat Marr et al.				
	Saxon	4-16-16	85,000	85,000
Total Under 2 per cent			**1,061,000**	
Total gross				**2,362,780**

Simms Oil Co., J. E. Murphy pits, 8 to 14 per cent bad.
Simms Oil Co., T. Murphy pits, 25 per cent bad.
Simms Oil Co., McKenzie pits, 5 per cent bad oil.
Berry & LeGrande, McKenzie pits, 6 per cent bad oil.
Berry & LeGrande, Laney pits, 8 per cent bad.
Robert Edmonds, McKenzie pits, 4 per cent bad.
Roxana Petroleum Corp., Murphy pits, 60 per cent bad.
Texas Pacific Coal & Oil Co., Laney pits, 10 per cent bad.
V. K. F. Drilling Co., Richardson pits, 8 per cent bad.
Woodley Petroleum Corp., Richardson pits, 5 per cent bad.

Pipe Line Department Earthen Storage.

Texas Pacific Coal & Oil Co.				
	Arnold	23-15-16	3,000	3,000
Humble Oil & Refining Co.				
	Primm	24-15-16	None	48,500
Gulf Refining Co. of Louisiana.				
	Murphy	9-16-15	109,000	109,000
Houston Oil Co. of Texas				
	Cunningham	25-15-16	71,000	71,000
Bradstreet Oil Co.				
	Cook	15-15-16	110,000	110,000
(Texas Pacific shown twice (Arnold farm) deducted from grand total.)				
Grand total all oil under 2 per cent b. s			**1,252,000**	
Grand total all oil in earthen storage				**2,701,280**

Panhandle Test Near Oil Level Of Previous Wells

WICHITA FALLS, Jan. 13.—The Tipton test, on the McConnell, near White Deer, in Carson county, and the Haines test on the Masterson in Potter county, show the most interesting late developments of the Panhandle territory tests.

The Tipton well is drilling around 2570 feet, after going through a 60-foot gas sand, which has a production of approximately 30 million feet of gas. The depth is right for this gas, operators point out, and interesting events should ensue as soon as the Tipton well gets down to the 3000-foot level, in which Carson county's oil wells have found their production.

The Haines well got a very heavy gas flow from five or six feet of sand, entered at 1680 feet. This sand carries approximately 15 million feet of gas, it is stated. The well is now drilling below 1700 feet.

Increased Initial Production But Daily Averages Show Loss

By Special Correspondent

SHREVEPORT, Jan. 13

INITIAL production increased 11,714 barrels in the Shreveport territory, embracing south Arkansas fields, during the week just ended, but daily average production sustained a decline of 9291 barrels. The initial yield totaled 27,216 barrels compared with 15,502 barrels during the previous week, and there were 29 producers against 20 the previous week. Four gassers and two failures for the week just closed, against four failures and one gasser the previous week, was also shown in the Shreveport territory.

The daily average production amounted to 184,135 barrels, all districts showing declines except Bellevue, Red River-DeSoto and Stephens.

The bulk of the new production was in the Smackover, Arkansas, district, in which there were 26 completions, three of them gassers and 23 producers with combined initial yield 26,355 barrels against the previous week's record of 17 completions, one a failure and 16 producing wells with combined initial yield 15,240 barrels. The initial yield almost doubled during the week.

In the El Dorado, Arkansas, district there was more than three times as much initial production reported, the week's record being 720 barrels from four producers, compared with 230 barrels from two producers the previous week. One failure was reported each week.

Haynesville went through the seven days without a new completion, compared with two producers, yielding 82 barrels of initial production, the preceding week.

In Bossier parish, Elm Grove district, three wells were completed, one a gasser, and two producers with combined initial yield 141 barrels, compared with only one completion, a failure, the previous week.

The only other completion of the week was in Webster parish, a failure, namely, the Dillon No. 1 of Wideman et al in 11-19-7, dry and abandoned at 3070 feet.

* * *

SHREVEPORT, Jan. 13.—In addition to completions listed in the weekly review of the Shreveport territory, published in this issue of **National Petroleum News**, four other wells in the Smackover district were reported here today as new completions, namely.

SHREVEPORT, Jan. 13.—Daily average production by districts in North

Daily Average	Jan. 11	Jan. 4
Caddo light	8,320	8,456
Caddo heavy	2,305	2,427
DeSoto-Red River	7,190	7,020
Haynesville	38,120	41,976
Homer	11,000	11,120
Bellevue	4,562	4,512
El Dorado	21,116	21,240
Smackover	91,102	96,275
Stephens	420	400
Total	184,135	193,426

Completions in North Louisiana and Arkansas, Week Ended Jan. 13.

Company	Well	Location	Depth	Yield
Smackover				
Gulf Refining Co	J. W. Primm No. 4	1-16-6	2008	20M. gas and 5 bbls. oil
Arkansas Nat. Gas Co	Sparh No. 2	35-15-16	2017	15M. feet gas and 10 bbls. oil
Bradstreet Oil Co	Laney No. 1	36-15-16	2001	300 barrels
Bradstreet Oil Co	Laney No. 2	36-15-16	2017	500 barrels
Dulaney et al	McKenzie No. 5	36-15-16	2022	200 barrels
Dulaney et al	McKenzie No. 8	36-15-16	2026	100 barrels
Empire Gas & Fuel Co	Laney No. 2	31-15-15	2015	200 barrels
Empire Gas & Fuel Co	Laney No. 4	31-15-15	2010	3,000 barrels
Houston Oil Co	Laney No. 4	31-15-15	2006	5,000 barrels
Humble Oil & Ref. Co	Laney No. 2	32-15-15	2025	15M feet of gas and 25 bbls. of oil
Humble Oil & Ref. Co	H. Laney No. 2	31-15-15	2025	2,500 barrels
Humble Oil & Ref. Co	Primm No. 1	1-16-16	2018	75,000,000 ft. of gas
Morris Drilling Co	Laney No. 2	31-15-15	2026	8,000,000 ft. of gas and 200 bbls. of oil
Marr et al	Le Croy No. 1	33-15-16	1987	4,000 barrels
Simms Oil Co	Laney No. B-2	31-15-15	2017	100 barrels
Simms Oil Co	E. A. Laney No. 4	31-15-15	2045	125 barrels
Sinclair Oil Co	Linahon No. B-1	36-15-16	1988	400 barrels
Standard Oil Co	Bennett No. B-1	32-15-15	1983	500 barrels
Standard Oil Co	Forch No. 2	29-15-15	2039	3,000 barrels
Standard Oil Co	Umsted No. B-1	32-15-15	2032	40,000,000 cu. ft. of gas and 15 bbls. of oil
Houston Oil Co	Primm No. 3	1-16-16	2027	3,000,000 cu. ft. of gas and 100 bbls. oil
Humble Oil & Ref. Co	Flannigan No. 1	6-16-15	2005	6,000 barrels
McCammey et al	Primm No. 1	1-16-16	1991	15,000,000 cu. ft.gas
Marr et al	Primm No. 2	2-16-16	1999	1,000,000 cu. ft. gas
Thompson et al	McDonald No. 3	1-16-16	2017	2,000,000 cu. ft. gas and 50 bbls. of oil
Wells et al	Saxon No. 4	4-16-16	2036	5,000,000 cu. ft. gas and 25 bbls. of oil
El Dorado				
Imperial Oil Co	Moody No. 4	17-17-14	2190	200 barrels
J. L. Nelson	Allen No. 1	18-17-14	2150	200 barrels
D. C. Richardson	Murphy No. B-2	20-17-14	2219	140 barrels
Coleman et al	Pendleton No. 6	21-18-15	2121	180 barrels
Standard Oil Co	Reynolds No. 1	1-18-16	2981	dry, aband.
Webster				
Wideman et al	Dillon No. 1	11-19-7	3070	dry, aband.
Bossier				
Atlas Oil Co	Caplis No. 8	23-16-12	1547	50 barrels
Shannal et al	McDade No. 1	12-17-12	870	1,500,000 ft. of gas
Gulf Ref. Co	Hodges No. 13	24-16-12	1542	91 barrels

Clark & Melat's Saxon No. 1 in 4-16-16, after being deepened eleven feet, 1200 barrels.

El Dorado Union Oil Co.'s Le Grone No. 1 in 36-15-17, at 1994 feet, bailed dry, and will be deepened.

Olvey et al's McDonald No. 4 in 1-16-16 at 2020 feet, estimated 5000 barrels.

Texas Company's Berry No. 1 in 33-13-15, completed in December as a gasser, drilled deeper, to 2058 feet, initial yield 1000 barrels.

Smitherman Et Al Sell Properties To Atlantic

By Special Correspondent

SHREVEPORT, Jan. 13. — Speaking for the Smitherman Syndicate, J. E. Smitherman yesterday confirmed a report of the sale of their remaining interest in the 2600 acres sold to the Gilliland Oil Co. early in the history of the Haynesville field, to the Atlantic Refining Co. Consideration involved is $2,000,000, of which one-half is cash and the balance is to come out of one-fourth the oil produced in the first two years after the sale and the remainder out of one-half the oil run thereafter until the purchase price is paid. Also, it is understood, the vendors retain a one-sixteenth excess royalty and their rights to casinghead gas produced on the properties.

The sale involves a one-half interest in 63 producing wells and 650 acres of productive territory plus 2000 acres of unproven area. The property originally transferred to the Gilliland Oil Co. constituted a one-half interest in the west half of the southwest quarter of each section in the Haynesville area. The present sale disposes of the other half interest in the same properties.

Eight months ago Smitherman et al sold their interests in the Gilliland pipe lines and tank farms to the Atlantic which, through the sale just announced, completes its interest in Haynesville, which was discovered by Smitherman and associates.

The Smitherman sale, it is reported, in no wise involves the Gilliland company which is in the hands of a federal receivership, according to George O Baird, ancillary receiver for the company, Mr. Baird points to the fact that such a sale would require the approval of the federal court and the entering of an order upon the minutes of the court. No such order has been entered.

The Smitherman and Gilliland interests owned jointly 80 acres in each section of the field and development was jointly conducted. The Atlantic company, according to Mr. Baird, is at present purchasing the oil from the Gilliland wells but this is merely an ordinary business transaction and the Gilliland interests are making no market discriminations in favor of the Atlantic.

Extends Kentucky Field

LEXINGTON, KY., Jan. 13.—A half-mile extension to the east to the second sand pool recently developed in Estill county, has been provided by the test of Smith et al on the Dan Miller farm on Middle Fork of Station Camp Creek. The well is rated at 20 barrels. The depth is 490 feet and the oil is the Somerset light grade.

(Continued from page 54)

extension of the 1750-foot sand in the new Freeman-Hampton pool in Archer county, a quarter of a mile extention of the 1800-foot sand, in the west side extension pool of South Electra, and the picking up of the 1800-foot sand south and east of production, in the Southeast Electra pool.

Developments in the new Northwest Clara pool show six new wells, all offsetting producers, started within the past week. There have been no new extensions of this pool since last week, the two new wells reported, the Barkley & Meadows No. 1 Hirschi, and the W. M. Moore No. 1 Foster & Allen, being both reported on the sand, and sure of production last week.

Right at present the W. M. Moore No. 1 Hirschi 2600 feet southwest of the discovery well of the new pool, is the most closely watched of any drilling well, since striking the sand here would mean another, and most important extension to the pool. This well is drilling a little below 1800 feet, and due to enter the top sands immediately.

The extension wells mentioned for the Freeman-Hampton and South and Southeast Electra pools are the Featherstone No. 1 Ferguson, in the Freeman-Hampton pool, with a flush production of 200 barrels; the J. J. Perkins No. 1 Waggoner, Sec. 33, a 150 barrel well in the 1800-foot sand, and the L. P. Hammond No. 1 Grace Jennings, 200 barrels, in the 1800-foot sand.

Three wildcats were abandoned last week, The Texas Co.'s No. 1 Everts, located several miles north of Iowa Park, abandoned below 2300 feet, the No. 1 Guthrie, southwest of production in the South Electra pool, of Pois, Kruger & Schultz, and the No. 6 Burnett of W. B. Larkin, in the South East Electra shallow field. The two latter were drilled to 2000 feet.

A new shallow sand is reported for the Holliday field, in Archer county, about 12 miles southwest of Wichita Falls, and right at the town of Holliday. The new well was drilled by Hackman & Sanderson on the McCall & Sanderson lease, and made 40 barrels, in the 550-foot sand. The new well is about a mile south of the Hackman & Sanderson 160-foot wells, which have the distinction of being the shallowest producers in north Texas.

A. P. I. Production Figures

The American Petroleum Institute estimates of daily average gross production for the weeks ended Jan. 6, 1923, Dec. 30, 1922, and Jan. 7, 1922, are as follows:

	1923 Jan. 6	1922 Dec 30	1922 Jan. 7
Oklahoma ...	410,050	410,000	319,450
Kansas	84,950	85,600	86,000
North Texas ..	58,750	59,000	60,300
Central Texas	124,800	123,750	209,025
No. Louisiana	77,900	78,350	89,500
Arkansas	118,650	116,600	43,250
Gulf Coast ...	127,650	123,550	111,125
Eastern	113,500	114,000	115,500
Wyo. & Mont..	121,250	120,350	59,300
California ..	515,000	510,000	320,000
Total	**1,752,500**	**1,741,200**	**1,413,450**

CASPER, Jan. 13.—Producers & Refiners Corp absorption plants at Casper and Riverton are now in operation. The capacity of the Casper plant is 50 million feet of gas while that of the Riverton plant is 10 million feet.

Kansas & Gulf Merger Plan Submitted Holders

HOUSTON, Jan. 16.—Plans for the merger of the Kansas & Gulf Co., Monarch Oil & Refining Co., and the Southern Petroleum Co., have been submitted to stockholders for ratification. The name of the new corporation is to be called the Peer Oil Corp. The merger will not include the White Oil Corp.

It is proposed to capitalize the new organization at 1,000,000 shares of common stock of no par value and 50,000 shares of 8 per cent preferred stock of $100 par value. It is proposed to issue only 30,000 shares of the latter at present. Ten thousand of them have already been sold pending organization and arrangements made for underwriting the remainder. Proceeds will be used for working capital and development.

Of the new common stock, 280,000 shares will be exchanged for stock of the Kansas & Gulf; 88,000 for the holdings of Monarch stockholders, and 52,000 for the outright purchase of Southern Petroleum stock.

R. L. Young, Houston, president of the Monarch, will be president of the new organization and H. S. Fox, Jr., president of the Exchange National Bank, of Houston, will be chairman of the board.

BRIDGEPORT, ILL., Jan. 13.—The test of Ewing & Marcus on the C. Stacy farm in Sec. 1, Lake township, Clinton county, which is adjacent to the Centralia pool, is dry at 1349 feet and abandoned.

CASPER, Jan. 13.—Transcontinental and Mark Weber interests have set 6⅝-inch casing in test on Bates Hole structure, in 9-30-81. It is now at 1860 feet on top of the Embar sand and a good showing of oil was encountered. The well will be drilled in immediately.

LOS ANGELES, Jan. 13.—The Wilshire Oil Co. is adding a 4000-barrel unit to its refinery at Vernon, and when this is completed the plant will have a capacity of 10,000 barrels of crude a day.

Gulf Coastal, Texas Completions, Week Ending Jan. 13

Company	Lease	Well	Field	Depth	Initial Prod.
Humble Oil & Refining Co	Hooks	4	Hull	3200	250
Republic Production Co	Dolbear	47	Hull	2500	S. W.
Wichita Petroleum Co	Helm et al	2	West Columbia	3450	1000 (50% BS & SW)
Texla Petroleum Co	Hunter	1	Edgerly, La	3050	125
Vinton Petroleum Co	Gay	36	Vinton, La	2300	200

Production and Disposition of Mexican Crude

TAMPICO, Jan. 11.—Daily average production in the Southern district of Mexico is shown for the week ended Dec. 28, last, in the sub-joined table. Under "owned" production is carried the oil actually produced by the operating company. Under the heading of "purchased" oil is shown the daily average quantities of crude produced and delivered by smaller operators to the larger interests named. Pipe line transfers from one principal company to another (such as would represent receipts and deliveries) are not included, the combined tabulation being made up with the idea of showing only production rather than deliveries in a pipe line sense.

Southern District Daily Production

Company	Amatlan	Tepetate Casiano	Toteco Cerro Azul	Chinampa	Zacamixtle	Potrero Del Llano Cerro Viejo	San Geronimo Chiconcillo	Chapapote Nunez-Tierra Blanca	Totals
(Owned)									
El Aguila	30503	...	.....	.....	...	34588	2377	.....	67,468
Agwi	12613	...	.....	.....	...	.....	.....	.....	12,613
Continental Mex		...	.....	24	...	.....	.....	.....	24
La Corona	1274	...	.....	.....	654	.....	1661	.....	3,589
Cortez-Atlantica	863	627		.....	...	.....	.....	.....	1,490
Huasteca		...	43000	.....	...	.....	.....	70000	113,000
International		...	9476	.....	...	.....	.....	.....	9,476
Metropolitan	3143	...	.....	.....	...	.....	.....	.....	3,143
Mexican Gulf	2287	...	25447	.....	...	.....	.....	.....	27,734
Transcontinental	5038	...	.....	181	18	.....	.....	.....	5,237
The Texas Co		...	.....	1030	...	.....	.....	.....	1,030
Sub-Total	**55721**	**627**	**77923**	**1235**	**672**	**34588**	**4038**	**70000**	**244,804**
(Purchased)									
Agwi	145	...	.....	.....	...	.....	.....	.....	145
Continental Mex	498	...	.....	.....	...	.....	640	.....	1,138
La Corona	752	...	.....	.....	...	.....	.....	.....	752
Cortez-Atlantica	51	...	.....	320	...	.....	486	.....	857
Metropolitan	402	...	.....	.....	...	.....	.....	.....	402
Mexican Gulf	60	...	.....	828	...	.....	.....	.....	888
Transcontinental		...	.....	73	...	.....	.....	.....	73
The Texas Co	4627	...	.....	.....	...	.....	.....	.....	4,627
Total Week Ended Dec. 28, 1922	**62256**	**627**	**77923**	**2456**	**672**	**34588**	**5164**	**70000**	**253,686**
Total Week Ended Dec. 21, 1922	**56491**	**600**	**87760**	**2860**	**698**	**29040**	**5141**	**60000**	**242,590**

Note—Panuco district heavy oil production now totals roundly 165,000 barrels daily.

Experiments Show Results Of Holding Back Pressure On Oil Wells

By T. E. Swigart

IN the production of oil and gas, engineering methods have been applied less than in any other branch of the oil industry. While refineries, gasoline plants, pipe-line and other transportation systems, and even drilling wells to a great extent, take advantage of engineering skill, the tendency has been to assume that the handling of producing wells is merely a mechanical and routine matter.

At present few companies employ engineers to study oil and gas production methods with a view of increasing the general efficiency of recovery, but in view of the advancement in other lines of the petroleum industry by the application of engineering principles, does it not seem likely that the production branch may benefit also by engineering studies?

Engineering applied to the handling of producing wells falls under two general headings,—first, the efficient handling of wells from the time of their inception in order to obtain the greatest possible ultimate production, and, second, the rehabilitation of old properties that have been handled carelessly in their early lives. To date, the engineering work that has been done on oil production problems falls mostly in the second class. For example, the use of vacuum and the application of compressed air have proved successful in some instances in stimulating wells of low gas pressure. These methods are costly to apply and are adapted to small wells in which the gas is almost exhausted, or in which the original gas pressure is negligible.

The experiments described in this paper fall under the first heading, as they were made with an idea of learning the probable extent to which the gas production of an oil well can be curtailed while gas in the sand is still plentiful, and thus saved for doing work during the later period of a well's life. Because of the scope of the experiments, this paper does not include a discussion of back pressure on flowing wells or for purposes other than cutting down the gas produced with each barrel of oil.

If it is true that in many fields, natural gas is largely responsible for the migration of oil from the oil sand to a well, then possibly some general relation bearing on the ultimate recovery of oil and gas may be deducted. For instance, it might be found that the ultimate oil production of a well is inversely proportional to the average amount of gas produced with each unit of oil. Then if the number of cubic feet of gas produced with each barrel of oil were reduced by 25 per cent, the ultimate oil production would be increased by 33 1/3 per cent; or, if the number of cubic feet of gas per barrel of oil were decreased by 50 per cent (one-half of original gas production), the ultimate production would be doubled.

Although the above relation cannot be proved even in a general way, and probably is not true, there is evidence that the reward for any saving of gas may be so material that no operator can afford to overlook a reasonable opportunity of limiting the gas production of his oil wells to the bare amount necessary to recover each barrel of oil.

Tests Made in Osage County

Few, if any, records of the actions of oil wells producing under certain back pressures are available. In view of the importance of natural gas in recovering oil and the conflicting reports of the effects of back pressure on both oil and gas production, arrangements were made for actually measuring the oil and gas produced by two wells in Osage county, Oklahoma, at different pressures and under certain varying conditions of pressure.

In order to establish better the effects of pressure and gas control, the entire series of tests was conducted without varying the tubing depths, pumping rate, or other factors except the pumping time, which had to be shortened from time to time as the wells declined, in order to prevent the formation of emulsion (cut oil). The pressure on the casing head was changed now and then, and the oil, gas and water were measured under the various conditions of pressure. No special effort was made to increase the present oil production of the wells. It was desired to learn at what pressure the maximum amount of oil could be obtained with a minimum amount of gas even though it cut down the daily oil production. Likewise, it was interesting to learn the relative amounts of oil and gas produced under different pressures, so as to establish what has been defined as the "gas factor of oil production" (cubic feet of gas per barrel of oil).

The experiments were carried on between the dates of Sept. 5, 1921, and March 31, 1922, in northern Osage county, Oklahoma. Although the tests consumed some seven months' time and were as carefully made as field conditions would permit, no claim is made that all the conclusions arrived at in connection with the wells tested will be applicable to other wells. It is felt, however, that the results are of interest and important, as they bear out certain theoretical principles which have been advanced but heretofore have lacked substantiating evidence.

The wells chosen for test were the Osage Development Co.'s Nos. 1 and 7, Sec. 35, T.29 N., R.11 E., Osage county, Oklahoma. In addition to being two of the best oil producing wells in the field, both these wells produced comparatively large quantities of gas for that field. Both wells are about 900 feet deep and both produce from what is believed to be the so-called "Stray" or "Red Sand."

Well No. 1 was the Skull Creek pool. It was favored by having been discovery well of the offset on two sides only by having a large drainage area on the southwest which was not drawn upon heavily by other wells. Well No. 1 has an 8-inch hole and was given a heavier shot than any other well in the field. Also the 8-inch casing permits of a larger hole at the bottom than in the other wells, and therefore gives well No. 1 the advantage of greater drainage surface through the oil sand. These factors are responsible, it is believed, for the rate of decline of this well, which is slower than for the average well on the lease. Well No. 1 had an initial production of 125 barrels per day during the first month but was producing about 29 barrels of oil per day and about 5700 cubic feet of gas per day against 21 pounds gage pressure at the time the tests were started. Prior to the time of taking over, this well had produced both against small back pressures and at atmospheric pressure. The pressure on its casing head had seldom exceeded five pounds, although at times it had reached ten pounds. The rock pressure of Well No. 1 was something over 75 pounds when the tests were started.

No. 7 Typical Well

Well No. 7 was completed about the same time as its offset No. 6 and only shortly before its other offsets. This well came in with an initial production of 150 barrels per day, and had a small decline in production during its early life, but later it followed the lease de-

Theories Proven In Actual Tests

"When the gas is gone the oil is gone," has been a belief commonly accepted in the oil industry for years. While methods of artificially restoring pressure to oil wells for the purpose of increasing the total recovery of oil—chief among them being the compressed air and the water drive—have been practised extensively and under certain conditions have been highly successful, there is general agreement that the conservation of gas pressure is the method applicable to most fields.

Mr. Swigart, superintendent of the petroleum experiment station of the U. S. Bureau of Mines at Bartlesville, Okla., read before the meeting of the American Association of Petroleum Geologists, held in Denver, Oct. 26-28, 1922, the accompanying paper setting forth certain results obtained in tests conducted over a period of seven months on two wells in Osage county, Okla. Detailed descriptions of the field, the wells tested, mechanical methods employed in conducting the tests and certain other topics not discussed in this paper will be set forth in a more complete report.—Editor

cline rate almost exactly. The offset to well No. 7, on all sides except the south, no doubt have caused this well to be more typical of the average well on the lease (as regards drainage area and oil production) than No. 1. Thus the history of Well No. 7 in regard to the number of offsets and their dates of completion is quite the reverse of No. 1, and to a great extent accounts for the differences in actions of the two wells.

The first closed pressure reading on Well No. 7, taken on Nov. 3, 1921, was 49 pounds. The rock pressure of this well was not as high as that of No. 1 but the daily gas production was more than twice as great, being about 13,000 cubic feet per day against a 24-pound gage pressure. This probably indicates a more porous sand condition at Well No. 7 than at Well No. 1. Unfortunately sand samples were not available so that this point could be checked. During the tests No. 7 was always more sensitive to back pressure than well No. 1. This further indicates a porous sand condition which would increase the interference from offsetting wells, all of which were producing at atmospheric pressure. However, it is believed that the difference in drainage areas is the principal cause of difference in the actions of the two wells.

Well No. 7, at the time the experiments were started, had always produced under back pressures ranging from 15 to 20 pounds and never at atmospheric pressure. By February and March, 1922, the rock pressure of No. 7 was only a few pounds less than that of No. 1, and the decline in rock pressure during the seven months of experimenting was not more than 4 or 5 pounds. This is to be expected when the number and distance of the offsets of each well are considered, and illustrates to good advantage the effects of offsets on the gas pressure in the reservoir.

How Wells Were Handled

In making the tests the casing heads of both wells were closed and the casing head gas lines run through pressure regulating valves and gas meters. The oil production of each well was gaged separately each day. In addition to numerous details of information, careful records of daily oil production, daily casing head gas production, back pressure, emulsion content, and during a part of the time, records of lead line gas produced with the oil from Well No. 1, were obtained.

The results of the test are briefly summarized in a following table. Both wells were tested first under relatively high pressures (over 20 pounds per square inch gage) and the pressure reduced from 5 to 10 pounds about every 10 days. The results of these tests are shown under the caption "Stepping Down Pressure" in a table following. The productions of both wells during this period declined, but neither declined as fast as the average decline curve for the lease. The "stepping down" period of the tests consumed about two months.

In order to observe the actions of the wells which had been producing at atmospheric pressure when subjected to gradually increasing back pressures, Wells No. 1 and No. 7 were produced at atmosphere for some time and the pressure then built up on them.

The third set of tests made were called "stopcocking tests." They were so designated because of the practice developed in some of the old Pennsylvania fields many years ago, which was known as "stopcocking." Certain wells in these old Pennsylvania fields would produce relatively small quantities of oil but would build up considerable gas pressure when shut in. The practice was to close in these wells and once every few days or each week open the valve on the lead line for a few minutes during which time they would flow the oil that had collected in the hole. The well then would be closed in again and allowed to "head up." The practice of stopcocking wells was a satisfactory and cheap way of producing oil, excepting that the entire production of oil which a well was capable of making each day may not have been obtained. However, some operators claimed that higher productions were obtained by stopcocking than by usual production methods.

Stopcocking Tests

"Stopcocking" as applied to the pumping wells described in this report consisted of closing in the wells so that they could not produce casing head

Table I

Summary Of Results Of Back Pressure Tests

Well No. 1—A—Stepping Down Pressure

I	II	III	IV	V	VI	VII
Average Pressure Lb.	Aver. Daily Oil Prod. Bbls.	Aver.* Daily Gas Prod. Cu. Ft.	Cu. Ft. of Gas per Bbl. of Oil.	Aver.* Prod. Decline for the Lease Bbl.	Per cent Deviation from Aver. Lease Production	Comparative Efficiency based on 21 lb. Pressure
21	28.80	5708	198	28.8	−0	100
14.8	29.56	6849	232	27.7	+6.7	85.5
10.9	28.10	7246	257	26.7	+5.2	77.1
5.25	28.90	8182	283	25.7	+12.4	70.0
0	27.20	5907	217	24.8	+9.7	91.3

B—Stepping Up Pressure

I	II	III	IV	V	VI	VII
Average Pressure Lb.	Aver. Daily Oil Prod. Bbls.	Aver.* Daily Gas Prod. Cu. Ft.	Cu. Ft. of gas per Bbl. of oil	Aver. Prod. Decline for the lease Bbl.	Per cent Deviation from Aver. Lease Production.	Comparative Efficiency based on 50 lb. Pressure
0	23.2	5341	230	23.2	0	38%
20	22.5	4826	214	22.5	0	41%
39.5	20.7	3982	192	20.6	0	46%
50	18.5	1634†	88.4	19.8	−6.6	100%

C—Stopcocking Tests

Aver. Night	Pres. Lb. Pumping Time	Aver. Daily Oil Prod. Bbl.	Aver.* Daily Gas Prod. Cu. Ft.	Cu. Ft. of gas per barrel of oil	Aver. Prod. Decline for Lease based on 20.2 bbl. per day	Per cent Dev. from Av. Lease Prod. based on 20.2 bbl. per day	Comparative Efficiency based on first test.
46.8	11.8	23.4	6945	297	21.7	+ 7.8	100% Closed at night
41	11.8	23.2	8628	373	21.1	+10.0	80% Closed at night
10	10	22.1	11146	503	20.5	+ 7.8	59% Held at 10 lb.
0	0	20.2	12157	602	20.2	0.0	49% Held at 0 lb.

* Includes lead line gas.
† The measured gas production was doubled to care for leaks. Well shut in at casing head.

Table II

Well No. 7—A—Stepping Down Pressure.

I	II	III	IV	V	VI	VII
Average Pressure Lb.	Aver. Daily Oil Prod. Bbl.	Aver. Daily Gas Prod. Cu. Ft.	Cu. Ft. of gas per Bbl of oil	Aver. Prod. Decline for the Lease Bbl.	Per cent Deviation from Aver. Lease Production	Comparative* Efficiency based on 24 lb. Pressure
24	16.85	13072	778	19.4	−13.1	100.0%
19.6	18.58	18730	1008	18.6	0.0†	77.2
15.3	18.34	20075	1130	17.8	+ 3.0	68.8
10.2	17.18	19770	1150	17.3	− 0.7	67.7
5	16.73	23360	1395	16.7	0.0	55.8
0	16.88	25282	1496	16.3	+ 3.5	52.1

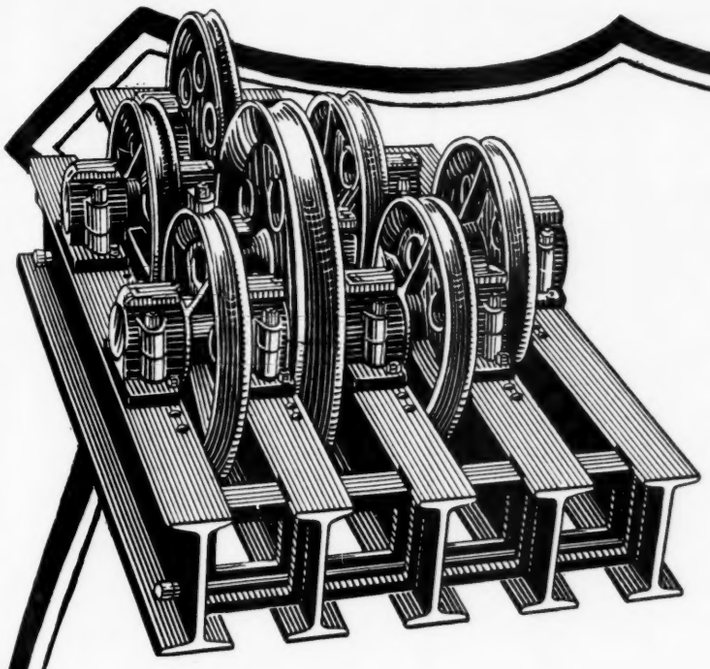
B—Stepping Up Pressure

I	II	III	IV	V	VI	VII
Average Pressure Lb.	Aver. Daily Oil Prod. Bbl.	Aver. Daily Gas Prod. Cu. Ft.	Cu. Ft. of gas per bbl. of Oil	Aver. Prod. Decline for the Lease Bbl.	Per cent Deviation from Aver. Lease Production	Comparative* Efficiency based on 30 lb. Pressure
0	16.5	22951	1392	16.5	0	77.8%
10	13.53	19507	1442	16.3	−17.0	75.0%
20	11.80	13602	1322	15.9	−25.8	81.8
30	9.75	10552	1083	15.5	−37.2	100.0
0	14.84	21546	1452	15.2	− 2.4	74.5‡

C—Stopcocking Tests.

Aver. Night	Pres. Lb. Pumping Time	Aver. Daily Oil Prod. Bbl.	Aver. Daily Gas Prod. Cu. Ft.	Cu. Ft. of Gas per Bbl. of Oil	Aver. Prod. Decline for the Lease Bbls.	Per cent Deviation from Aver. Lease Production	Comparative Efficiency based on third stopcocking test
0	0	12.89	10284	830	12.4	0	74.7%
43	0	10.75	7375	686	11.9	−9.6	90.3
20	0	11.78	7301	619	11.4	+3.3	100.0
0	0	12.00	9480	790	11.0	+9.1	78.4‡

* The percentage efficiencies are based on the test at which the well was most efficient in order that they would fall below 100%.
† Adopted as origin because 24 lb. pressure materially decreased production
‡ Benefits from pressure which had built up in sand



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gas during the hours they were not pumping, and opening them and blowing off the pressure just prior to, and during pumping. The purpose of these tests was to learn whether more oil could be produced with less gas by this method than with a steady back pressure which allowed the wells to gas throughout the entire 24 hours at a reduced rate.

The importance of setting down records and preparing charts, tables, etc., to permit of ready comparison and weighing of the data obtained, is paramount when conducting tests of this nature. It was found that insofar as the oil production was concerned, charts bearing the actual production curves of the wells upon which were superimposed segments of the production decline curve of the "average well on the lease" were by far the most illuminating. Likewise in preparing Tables I and II use was made of the decline curve of the average well on the lease.

The gas production per barrel of oil or "gas factor of oil production" is used in computing Column VI of Tables I and II. The method of handling the wells that resulted in the smallest gas production per barrel of oil was considered the most efficient with regard to production. Comparative efficiencies of other tests of the same set are computed on that basis. Some of the tests showed decreased oil production but at the same time higher efficiencies, because less gas was produced per barrel of oil. Thus, while the daily oil productions seemingly are of utmost importance in gaging the effectiveness of various methods of handling the well, the "Gas Factors of Oil Production," because they take into account both oil and gas production, are the true measures of efficiency.

Summary

The following summary has been drawn up partly on the basis of the results obtained during the field experiments on back pressure and partly from data and opinions resulting from a study of oil well production methods in various fields of the United States which is now being attempted. Since the experiments were confined to two wells in one field, and other data are incomplete, many of the conclusions must be regarded as suggestive rather than as definite. A number of the following conclusions will not be applicable to wells under different conditions, but it is believed that most of them may be common to wells in other areas. The wells referred to are wells that produce by gas pressure and not by water pressure.

1. A differential in pressure between the well and outlying portions of a natural underground oil reservoir is essential for the movement of oil towards the hole. As the rock pressure in the oil-bearing formation declines, the pressure at the well must be lowered "ahead" of it to insure a flow of oil and gas towards the well. In order to maintain this differential after the rock pressure has declined to a low point, vacuum is put on many wells. The magnitude of the differential will depend upon a large number of variable factors, many of which can not be determined. Therefore, actual field tests on individual wells or part of the wells on a property with fairly uniform con-

ditions, must be made before the most efficient differential can be determined.

2. Underground conditions, as regards pressures and arrangements of fluids, in oil fields are constantly changing, therefore one set of tests to determine the best differential pressure can not be accepted for the basis of operations over a long period of time. Systematic tests should become a part of the operating routine. The operator after making a few tests will be able to decide upon the frequency with which future tests should be made. It is the writer's opinoin that once an operator becomes thoroughly conversant with his wells, the need for tests will not arise often enough to be burdensome.

3. Both absorbed and free gas, if free gas is present, assist oil in migrating from outlying portions of the reservoir to the well. The greater the rock pressure and consequently the greater the quantity of natural gas in the reservoir, the greater will be the ultimate recovery of oil from a well. Experience has shown that relatively small amounts of oil are recovered from a well after its gas pressure has declined to a very low level.

4. If the preceding conclusions hold, it may be said that the methods that will permit the extraction of oil from natural underground reservoirs with a minimum amount of gas per unit of oil, are those which will insure the greatest ultimate recovery of oil. Operating methods that permit or encourage the escape of more gas than the minimum amount required to bring each unit of oil into the hole will lessen the amount of oil which ultimately may be recovered.

5. By holding back pressures on a pumping well, the daily gas production may be reduced appreciably. In general, the greater the back pressure the less the daily gas production.

6. Fairly large back pressures can be held on many pumping wells without cutting down their oil productions, and back presures approaching closely the potential rock pressure of the reservoir can be held on some wells at a sacrifice of only small percentages of their present daily oil productions.

7. The back pressures that are most effective in increasing the efficiency in oil recovery (by cutting down the number of cubic feet of gas per barrel of oil), are those pressures which do have a noticeable effect on the present daily oil production. However, the higher the back pressure, the greater seems to be the rate of increase in efficiency of production, (that is, the greater becomes the reduction in cubic feet of gas per barrel of oil with every equal increase in pressure.)

8. By closing in well No. 1 which was in the nature of an isolated well, and permitting only that gas which came through the lead line to escape, it was found that the daily oil production was decreased 7 per cent and the number of cubic feet of gas per barrel of oil was decreased by two-thirds. Doubtless such a small decrease in present daily oil production would be compensated for by the increase in ultimate recovery many times over.

9. A well which was offset on three sides at the usual distances by wells producing at atmospheric pressure (well No. 7) and which drained a fairly porous sand was sensitive to back pressure. A back pressure of 20 pounds when the potential rock pressure was over 50 pounds caused a loss of 13 per

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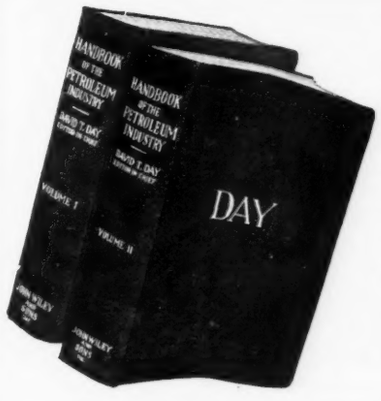

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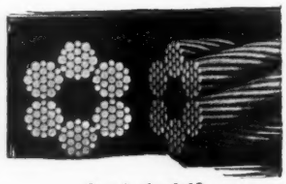

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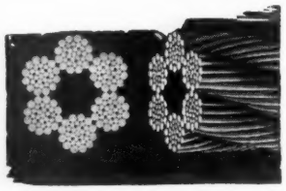

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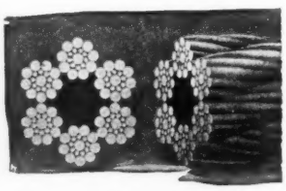

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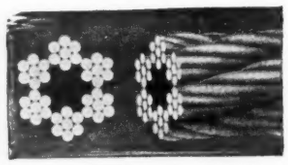

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cent in present daily production, while a back pressure of 30 pounds reduced the daily oil production by 37 per cent. High back pressures are not practicable for wells that are closely offset by wells producing at atmospheric pressures.

10. Stopcocking raised the present oil production of well No. 1 from 8 to 11 per cent over the normal oil production at atmospheric pressure. and 18.2 per cent over the oil production of the well at a 50-pound back pressure.

The loss in efficiency by stopcocking due to the production of gas in excess of the amount produced per barrel of oil at 50-pound pressure, amounted to more than 23 per cent. Therefore, although the present daily oil production was greatly increased by stopcocking, the amount of gas used per barrel of oil was 3 1-3 times that used per barrel at a 50-pound pressure, and such practice no doubt would cut down appreciably the total ultimate production that could be obained if the back pressure on the well were kept near the potential rock pressure.

11. Stopcocking injured the production of well No. 7 (offset on three sides) when the well was closed in each night Prior to stopcocking the well had been producing at atmospheric pressure for 50 days. Later stopcocking increased the production of the well 3 per cent when a pressure of only 20 pounds was allowed to build up within the well each night. It is believed that while gas pressure was being established in the sand which had been under low pressure during the run at atmospheric pressure, the daily oil production was injured and as the new arrangement of fluids took place, the well regained its normal production.

12. Stopcocking probably will increase the oil production of most wells. If the well is closely offset by wells at low pressure, the over-night pressures should not be permitted to rise too high, else the oil production may suffer at the gain of the offset wells. Stopcocking may or may not be efficient as regards gas production with the oil. In general, stopcocking will be more successful after the rock pressure has built up in the reservoir near the well. If stopcocking is started with the pressure near the well at zero pounds gage, the first month of handling will probably cause a decrease in oil production, but continued stopcocking should increase the oil production.

13. Producing with open casing heads from wells while the gas pressure is still good will result in inefficiency. For instance, well No. 7 averaged 21,546 cubic feet of gas per day during the period from December 18 to 30, 1921 with the casing head open (at atmospheric pressure) Except for about thirty days at odd times, it had never produced at atmospheric pressure during its life of approximately 1 1-3 years. After producing at atmospheric pressure from December 18 to February 20, its daily gas production dropped to approximately 10,300 cubic feet, or decreased by 100 per cent, indicating that at atmospheric pressure the well had blown off a considerable part of its "head."

14. Back pressure held on wells that have been producing at lower or atmospheric pressure will reduce the oil production at least temporarily, owing to the decreased rate of flow of gas and oil towards the hole during the time that the pressure is building up in the sand. After a relatively high pressure

has been built up in the sand between the well and more remote portions of the reservoir where the maximum rock pressure of the particular locality exists, comparatively high back pressures may be held without seriously cutting down the oil production. Enough time to permit reestablishment of high pressure near the well must be allowed before the true effects of the pressure can be gained.

15. Wells produce casing head gas at a faster rate when they are pumping and when the fluid is pumped down than when they are shut down and there is a column of fluid in the hole. The fluid column which builds up when wells are shut down usually is effective in materially reducing the rate of flow of casing head gas.

16. The wells tested did not cut their oil because of back pressure. They did cut their oil, however, because of leaky cups and valves or when pumped after they had begun to pump off.

17. The holding of back pressures should increase the flowing life of wells. The employment of the back-pressure method of handling wells no doubt will bring into prominence flowing devices by which relatively small wells will flow their production with their own gas pressure. Increasing the flowing life of a well is important not only with regard to increased recovery, but also with regard to reduced operating expense.

Greater Final Recovery

In this paper data have been presented to show the effects of holding back pressures on two wells. These data for the most part, bear out theoretical conclusion, many of which have been advanced previously by Bureau of Mines engineers. Practically all oil men from the oldest experienced field men to the petroleum engineer agree that "when the gas is gone," the average oil well may be considered as practically exhausted. Experienced oil men agree that if gas could be conserved and therefore the rock pressure in the oil sand sustained above the usual level, oil wells would decline more slowly in daily production. This, of course, would result in a greater ultimate production of oil from each well.

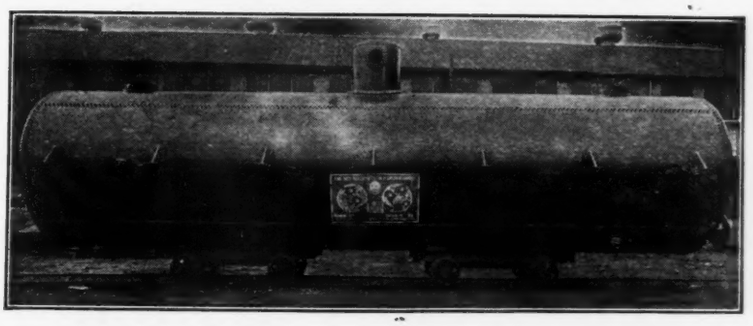
Holding back pressures on pumping wells may afford a method of cutting down the gas production per barrel of oil. However, the back pressure method of handling wells is not recommended for indiscriminate use. In many localities it will be impractical. It is felt, however, that the tests described in this report indicate the possibilities of holding pressure and increasing the efficiency of production and, possibly, will serve as a basis for future work in the scientific production of oil. The chances for increasing the ultimate oil production apparently are of such nature as to warrant consideration of this method or other improved methods which may be developed.

Author's Acknowledgment

Full acknowledgment is made to the Osage Development Co., owner of the lease, and in particular, to Mr. Paul F. Dahlgren of that company, who turned over to the writer the entire handling of the two wells tested. The Indian Territory Illuminating Oil Co. kindly furnished the gas meters used and kept them in repair.

Mr. Charles R. Bopp, of the Bureau of Mines rendered invaluable service in connection with these tests. Other members of the Bureau assisted in various ways.

HAMMOND SPECIFICATIONS



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Standardization Of Practice As Well As Of Equipment Needed

By J. B. Wells
ENGINEER, KERN SUNSET OIL CO.

OIL field engineering is comparatively a new term in the profession. From one standpoint it may be said that oil field engineering has existed since Col. Drake's time while from another it seems hardly yet established. Engineering may be defined as the successful utilization of available resources to accomplish a desired result and according to this definition it is of old standing in the industry. A second definition is that engineering is the accurate and economical adaptation of natural laws, sciences, and materials to satisfy human needs and wants. In the light of this definition oil field engineering is still in its beginnings.

Oil field engineering can probably best be considered for the present purpose as a subdivision of the larger branch, mechanical engineering, as this paper does not concern itself with problems other than those arising in the drilling of wells and the production of oil therefrom.

Scarcely any of these problems come within the province of the civil or chemical engineer, and only a few more can be considered as the concern of the electrical engineer. According to personal inclination or force of circumstances a mechanical or electrical engineer concerns himself with the design of equipment or its operation and it is the writer's belief, after experience in both lines, that there is room for much work in both departments.

Taking first the operating problems, for they arise from the use of existing equipment and material, it must be said that present day practice, especially on the smaller leases, is wasteful in the extreme. It is hardly open to question, for example, that hardly one operating man in a hundred has even approximately accurate knowledge of the return he receives in foot-pounds of work for a barrel of oil or a thousand feet of gas burned under his boilers. It is hardly reasonable to expect every lease superintendent to conduct formal tests to determine whether his plant is operaing at maximum efficiency.

So far as the boiler plant, distribution system of piping, and engines in the rigs are concerned they are, after all, adjuncts to the main portions of the property, that is the wells. In this respect an oil lease corresponds to a manufacuring plant rather than to a plant which is designed solely for the production of power, but on a lease as in a factory the requirement is the same, all parts must function at the highest attainable efficiency if maximum profits are to be secured. This is especially necessary at the present time when the price of oil at the wells is generally low.

There are journals which are published especially for men engaged in steam power plant operation and which carry in each issue articles explaining the principles of recognized good practice in every phase of that industry. These articles cover in a clear, concise way the underlying principles of design and construction of grates and stokers, boiler settings, drafts; in fact the entire field is gone over, not once but again and again for the benefit of the younger men as they come in and also to keep abreast of advancing practice.

It is the writer's opinoin that there is a wide field for work of this nature in our own industry, not only in connection with the steam plant of a lease, but with every part of it. To be of the most benefit such articles should be written by men who know from personal experience the practical side and who have in addition worked out for themselves, or have been trained to consider, the theoretical considerations involved. Practice without theory is often like a man groping in the dark, results are seen but the underlying causes are often overlooked. On the other hand theory without practice is like a man confined to bed, he can do nothing.

In addition to articles of the type above referred to these magazines have a section devoted to useful kinks and methods sent in by their subscribers. There should be a vast amount of information of this kind available if an effort were made to bring it out. On almost every property men have met and solved some problem, that is more or less common to all operators, in a way that is superior to what has been done before. Most men are proud of their accomplishments to some degree and are generally willing to tell what they have done along such lines. It would seem that if a magazine were started along these lines, or if one or more of the existing magazines would add departments of these types to their present issues, it would almost certainly result in raising the general average of field practice.

What An Oil Company Engineer Says

Mr. Wells, formerly field engineer for the Lucey Manufacturing Corp., prepared the accompanying article at the request of Capt. J. F. Lucey to be read at the recent annual convention of the American Petroleum Institute.

Through his inability to attend the meeting, Mr. Wells' article has not been made public until now, with its authorized publication here.

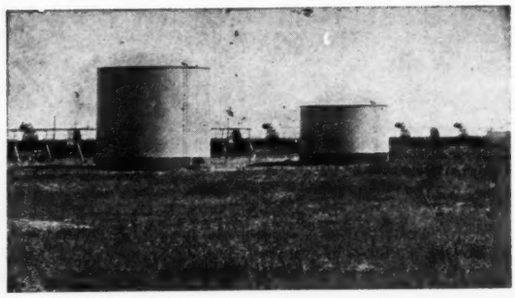
It is of timely worth as the viewpoint of an engineer in the producing business and comes in the series of articles which have been published in these columns on standardization of equipment—the authors being both producers and equipment manufacturers.—Editor.

In addition to the foregoing it would be desirable if oil men generally could be made acquainted with a larger number of forms and types of electrical and mechanical equipment than at present, together with their limitations. Perhaps an illustration will best explain what is meant. There is a certain property known to the writer on which a large amount of water is produced and sold to neighboring leases. At first the water was handled by duplex steam pumps but later, to reduce operating expenses, a power driven duplex plunger pump and a gas engine were installed. The pump did not have sufficient capacity to take care of the peak loads though it was more than large enough to handle the average load in a day if it had been uniform. When the peak loads came on the pressure would fall off, frequently as much as 75 per cent to 80 per cent, and complaints regarding the service would come in from the customers.

The question of what could be done came up one day and the writer suggested the use of a centrifugal pump. There was a good deal of skepticism as the other parties' knowledge of centrifugal pumps was limited to those used as circulating pumps with gas engines. However the matter was investigated and a three-stage centrifugal pump installed. It handles the peaks easily and with only a small pressure drop that does not exceed 10 per cent and occasions no complaints. Furthermore it costs about one-fourth what the other pump costs and uses a good deal less than one-eighth the lubricating oil. A knowledge of different types of pumps at the time the first one was bought would undoubtedly have resulted in the installation of a centrifugal at that time with the corresponding reducion in investments and operating cost, not to mention the better service to the customers.

Earlier paragraphs suggested the desirability of having theoretical considerations and fundamentals of practice published by some journal circulating generally through the fields, with the idea that in this way operating practice would be improved. Another result that can reasonably be looked for is standardization of practice. This would open the way for, and indeed demand, greater standardization of equipment. . It is not within the scope of this paper to dwell on this subjcct but it is alluded to here as any discussion of engineering would be incomplete without it. The standardization of methods, materials, and design depends upon accurate knowledge resulting from experiment and theoretical analysis, and this is the province of the engineer.

Turning now to the subject of design it is of first importance that the manufacturers of equipment used in the fields continue to give close and continued study to the changing conditions and methods and this should be done from an engineer's standpoint, with the idea of leading the field so far as possible rather than following. In the writer's opinion there has been too much of a tendency on the part of manufacturers to give the field anything it wanted (where this was possi-



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It is nothing short of a false assumption, unsound and untrustworthy, to think that merely stocking up the dealer with a product constitues effective distribution. Effort of that kind, it is true, may dispose of a lot of goods, but it does not sell them. Unless the consumer comes in prepared or disposed to buy them they will remain on the shelf of the dealer, re-orders will be impossible, and the whole product will be a failure.

The safest alternative is for the manufacturer to create a consumer demand through Advertising. This will help the dealer move the goods, and then he will order more.

Advertising is as much a basic part of the business of the manufacturer of any specific trade-marked product as is production and distribution. It is not something that can be considered merely as an expense to be curtailed to the minimum. It is a creative influence which, more than any other thing after the merit of the product, determines the extent of the consumer demand.

Too often the manufacturer thinks of his advertising as a clever means of impressing the dealer with the desirability of stocking up with his goods, and he does enough to accomplish that effect, and then expects the dealer to move the goods. This is a mistaken use of advertising and it quickly reacts upon the manufacturer.

It is the business of the dealer to provide the goods which the public demand. He would be foolish to do otherwise, and would soon cease to be a dealer. It is the business of the manufacturer—meaning specifically, the manufacturer of a trade-marked article, or one that might be trade-marked—to create a consumer demand by means of Advertising.

[Published by the National Petroleum News in co-operation with The American Association of Advertising Agencies]

ble) without caring much whether the want could best be met in the way suggested or not. This has unquestionably led to the present multiplicity of types of a given part that now amounts almost to chaos. Application of abstract principles without exact knowledge of the use of the equipment is useless but at the same time it is necessary that accepted good practice in the fundamentals be not overlooked.

In a certain section of this country the product of a certain manufacturer has by long odds the most general use and enjoys the greatest popularity. In spite of this the writer has heard this equipment cursed repeatedly because of the quality of material used in its construction. As this seemed an unusual state of affairs an effort was made to find out the reason for its popularity. In nearly every case the answer was, "Well, its design is good and it is handy and convenient to use." That is very suggestive. Time in the oil fields is money, perhaps to a greater degree than in oeher industries, and the work, especially in a drilling rig, is hard under the best conditions. Any manufacturer whose product can be most easily maintained, and adjusted or repaired when necessary, and which is most conveniently arranged for use in operation, will, other things being anywhere nearly equal, enjoy the bulk of the business. Especially is simplicity desirable but the idea must not be carried too far or it will defeat its own purpose, which is the convenience of the operator. The present day automobile is nowhere near so simple a machine as its predecessor of fifteen or twenty years ago but it is vastly more accessible and convenient to operate. If it becomes necessary to depart from a simple and elementary form and design to effect greater simplicity in use, that is the thing to do.

Need More Trained Men

In considering the question of design it often seems as though about the only advance remaining lay along the refinement of existing types but the history of nearly every industry is against such an assumption. It is altogether probable that the next twenty years will see as much progress as the last. In this belief the writer is of the opinion that it would be to the advantage of the industry if technically trained men could be attracted to it in larger numbers. This does not apply to the refining branch of the industry as this is no part of the theme of this paper, nor does it, in general, apply to the large companies which already have competent engineering staffs, but it does apply to the smaller operators.

Certain colleges and universities have established courses which deal, to a greater or less extent, with the problems of the oil industry. Unfortunately the writer is not familiar with the curricula of any of these courses but certain subjects would seem essential. Geology, though it hardly comes under the head of engineering is one, and others are mathematics equivalent to that given in any recognized technical college, physics, chemistry, the principles of mechanics of materials, machine design, metallurgy, with especial reference to the heat treatment of steels, and as thorough a course as possible in the special features of the industry including drilling and production methods.

pipe line transportation, and refinery practice.

As men so trained enter the industry in larger numbers there should be less of the attitude so prevalent today that weight means strength. Weight may mean strength or it may not. If a cast iron fly wheel having a certain rim section will burst at a given speed, then no increase of weight with the same form of rim will make it safe. A change in form or a change in material, or both, must be made, and the determination of such points is the province of the technical man. In the writer's experience with one of the large companies manufacturing oil field supplies it was found necessary to increase the strength of the rig iron cranks. An investigation showed that the quality of material from which it was made was not at fault and it was impracticable to increase the weight materially for various reasons. A comparatively simple analysis of the form of section led to a design that was more than 60 per cent stronger than the old one on less than 5 per cent increase in weight.

When Steel is Preferable

In cable tool equipment steel has generally predominated but in rotary rigs, until recently, cast iron has been largely used. From an engineering standpoint this is undesirable especially in parts such as rotary tables and bases, and sprockets, which are subject to shock loads of considerable severity, and also in parts such as crown block sheave gudgeons that have to support heavy transverse and shearing loads. Cast iron is known to be a material in which the strength varies widely, even in different parts of the same piece, so that its use requires a factor of safety that is often excessive when other considerations, such as space limitations, are taken into account. Furthermore its brittleness, especially when at a low temperature, renders it more liable to failure.

The problem of how far to go in the use of higher grade materials such as alloy steels, is one that continually confronts the manufacturer. Their cost is higher, naturally, necessitating a higher price to the user in most cases. if, in an effort to hold down the cost, the parts are lightened, even though the reduction is sectional area is more than offset by the higher unit strength of the better material, it is often difficult to the point of impossibility to persuade the average field man to buy them or even try them. He says, "So-and-so's stuff is heavier than yours and I can bust it; what chance do you think yours would have of standing up?" He knows the expense and delay that result from break-downs and is so firmly of the opinion that weight means strength that he will not take the chance. He does not know, or does not appreciate, the difference in strength that is inherent in different materials and has never been trained to consider the principles that underly the choice of different sections under different conditions so his attitude is perfectly reasonable though unfortunate for all concerned. It can hardly be expected that this condition can be changed until the men holding such views and subject to these limitations are replaced by others who have the training and experience that will enable them to appreciate the principles of design and the characteristics of materials.

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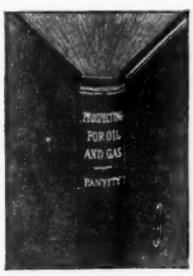

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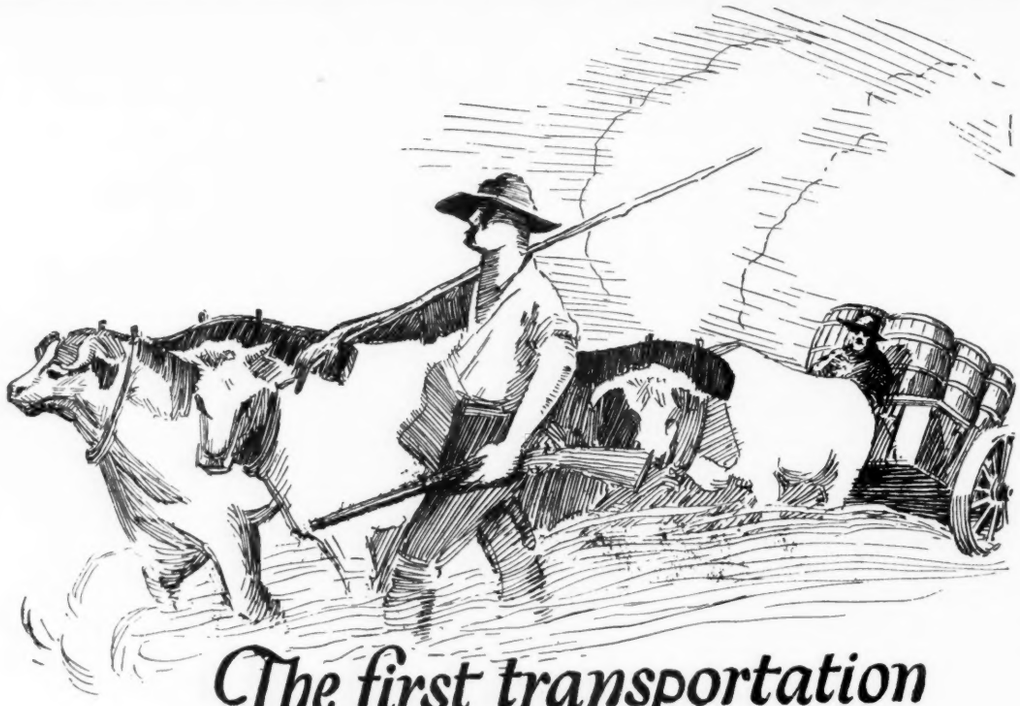

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GASSING SLIGHTLY

By Rollin Stone

PIPE line companies frequently have difficulty in making a deal satisfactory to the land-owner for line right-of-way. Very often the hitch is in the financial consideration—in fact, that is the chief trouble. It remained for a "dry farmer", in Wyoming to offer the most novel reason for blocking a pipe line company which sought to cross his land.

The Central Pipe Line Co. was putting in its line from Casper to Salt Creek. The "dry farmer," an old fellow who had lived on his homestead for many years, always on the ragged edge of nothing, watching one crop after another dry up, stopped the company at the edge of his farm. After his refusal even to discuss the matter had been repeated, an official of the Central, who had known the farmer for some time, paid him a visit.

"Here," said this official, "what is the reason you won't let us cross?"

"Well, I'll tell you," replied the farmer, "I let the Midwest cross with its line for a very small amount. The line went right through my crops which were always in danger. But that danger line broke to the north of me and to the south of me, but never once on my crops. I'm just plain unlucky."

* * *

BY the perusal of automobile accessory advertisements in various popular magazines, O. V. Borden secretary of the Mid-Continent Purchasing Agents Association, has learned how to economize on gasoline to an extent hitherto thought impossible.

Although in imminent danger of bankrupting the Standard Oil Co., Mr. Borden figures that the installation of a Stormbound carburetor will decrease your gasoline consumption 25 per cent. Dill piston rings will save another 25 per cent, Quackem's Hot-Shot Vaporizer will save 15 per cent, Bunkalene Motor Oil will reduce consumption another 20 per cent and the addition of a small inexpensive can of Zip to your gasoline will take off the remaining 15 per cent.

Add to your car Nonpareil spark plugs and the Weehawken timer and you can save another 35 per cent, so Mr. Borden figures that, if you run far enough, you will accumulate so much gasoline your tank will run over.

* * *

AN interesting contribution to the knowledge on viscosity of crude oil is that made by W. E. Lockhart, vice-president of the Producers & Refiners Corp. Mr. Lockhart avoids the method preferred by chemists in describing the consistency of oil, preferring to express it in a graphic form that anyone can understand.

The particular oil under discussion was that produced in the Lost Soldier field, of Carbon county, Wyo. This crude has the tendency, as pipe line men say, to "pile up," in the line and in cold weather is hard to handle.

"I have heard, and mind you, I don't vouch for this, that a plug of this crude stuck out ten feet from the open end of a 2-inch line," said Mr. Lockhart. "A 'crum boss,' needing some oil to start a fire, cut off the slug at the end of the line, coiled it up and carried it to camp in a sack."

"Personally, I saw a chunk of this oil pushed out from the end of an 8-inch pipe, just like tooth paste squeezes out of a tube. A ditcher cut off the oil with his spade and it rolled fifty feet down hill before it broke in two. I have also heard—please be careful to quote me exactly in that I have merely heard this—that some of the wells in the Lost Soldier field have flowed in the winter time and unsupported columns of oil stood up inside the derrick to the crown block, just like a string of casing."

* * *

HS. BOTSFORD, recently selected to head the Comet Oil Co. after filling the position of sales manager for two of the largest refining companies in California, the Union first and lastly the Shell Co., and who for the past year has been the president of the Sales Managers' Association of Los Angeles, sent the following seasonable greeting to his associates in the sales organization;

'Tis now we think of Christmas cheer
And shout good wishes for next year,
The while we find our note-books full
Of pledges that are mostly bull; i. e.,
To wit, the ones wherein
We say that no synthetic gin
Nor bootleg hootch from off the hip
Henceforth shall pass our chastened lip;
That we'll observe the Golden Rule
E'en though the other man's a fool;
That though we play in direst luck
We shall decline to pass the buck;
That hence throughout our mortal life
We'll hand our pay-check to our wife.
And when we tally up the score
It's possible that one or four
Of these bright dreams we've made come true.
We've held aloof from all home brew.
We've played the game upon the square
And slain temptation in its lair.
So far so good; but with the rest
Let's do our everlasting best
In this year nineteen twenty-three,
With all our might and energy.
To build up faith, to hold the thought
That mightier deed was never wrought
Than to extend the helping hand.
Then when we reach the Golden Strand,
May men who sell and men who buy
See written wide across the sky,
In glowing words, the greeting nifty,
"Good boys! You've played life fifty-fifty!"

British Imports Are Less

WASHINGTON, Jan. 12.—Imports of crude petroleum into the United Kingdom during November were about 6,000,000 imperial gallons less than the October receipts, according to reports to the Department of Commerce. Fuel oil receipts during November were more than double the October figure and some 3,000,000 gallons above the September imports. November imports of lamp oil were about 50 per cent less than those for October, while receipts of this item for the 11 months' period were almost exactly the same as for the first 11 months of 1921.

For the 11 months of 1922 crude oil imports were 196,000,000 imperial gallons compared with 79,000,000 in the corresponding time of 1921.

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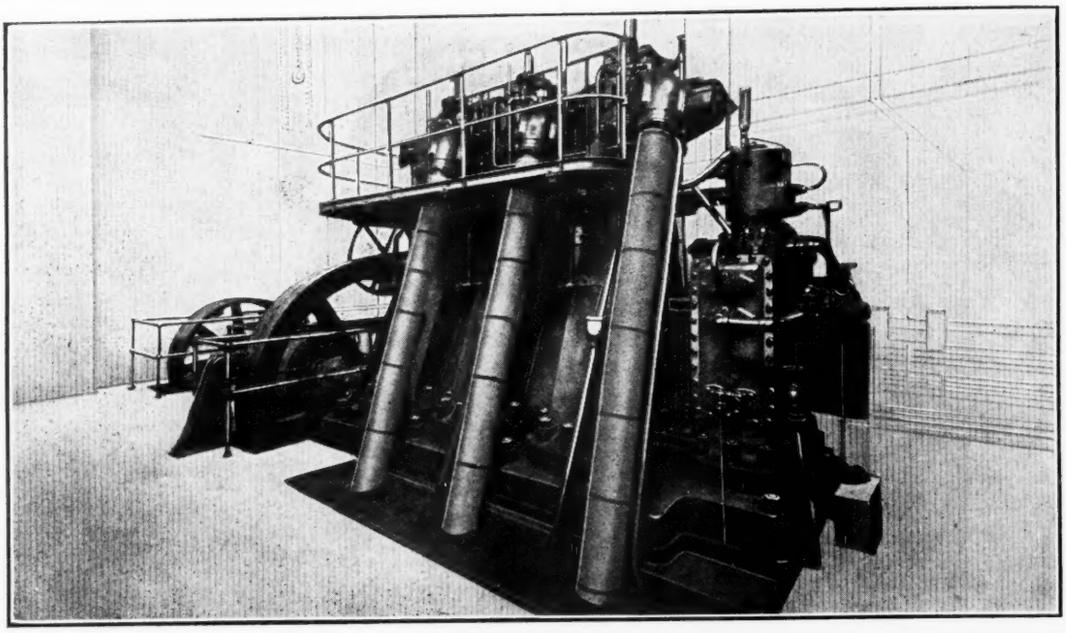

A flour mill that bought its second Fulton-Diesel

A flour mill had a 200 horsepower Fulton-Diesel installed in 1913. Production increased. More Power was needed. And a second Fulton-Diesel—a 285 horsepower engine—was installed in 1919.

Repeat orders for Fulton-Diesels are not exceptions. They are expected. Reasons why can be told in a sentence—Burning low-grade fuel oil in internal combustion, the Fulton-Diesel operates on one-third the fuel required to produce equivalent steam power, and attendants are reduced to one engineer.

The simple design and automatic operation of the Fulton-Diesel, coupled with Fulton co-operation, make it easy for the plant engineer to become an expert. Our supervising engineers make regular visits to each Fulton installation to advise upon the most efficient methods of Diesel practice. Plant engineers interested in Fulton-Diesel operation are cordially invited to St. Louis to visit our shops.

On requests from executives and engineers, our latest illustrated book describing the Fulton-Diesel will be mailed free and postpaid. Our staff of engineers is ready at all times to advise on any power problem—anywhere—without charge or obligation.

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FULTON DIESEL

"Contact Process" For The Filtering Of Petroleum Products

By H. L. Kaufman

METHODS employed at present for filtering petroleum products consist of three main classes as follows:

1. Passing the oil through a filter which is almost completely filled with granular fullers earth.

2. Agitating the oil with fine fullers earth and subsequent passing through a filter of a suitable type to remove the earth.

3. Stirring the oil after an acid treatment, but without being neutralized, with an acid treated clay at temperatures ranging from 250 degrees F. to 350 degrees F., and removing the clay by passing through filters of certain types.

The first named method is the one most frequently used up to the present. Fullers earth is a clay found largely in Florida, Georgia, and Texas. It is dried, ground to the proper mesh, and burned at a high temperature prior to its being placed in the filter. When the oil is passed through the filter, fullers earth absorbs carbon, tarry and asphaltic matter, and impurities with which the oil may have been contaminated; it also improves the color, which is the chief reason for filtering, by removing some of the ingredients of organic origin which give color to the oil.

Efficiency Greatest at First

When fullers earth is first used the filtering efficiency is much greater than later on in the process. The pores of the earth have a tendency to become clogged with impurities. It is for this reason that the oil first coming from the filter is lighter in color than that which comes through as the process continues. When the average resulting color of the oil in the receiving tank meets the desired specifications the filtering operation is stopped. The average amount filtered through an 18-ton filter will be from three to four barrels an hour.

The earth in the filter is then washed with naptha, steamed, and dried. It is next taken to a kiln where the carbon and other impurities are burned out, after which it is again ready for use. Fullers earth can be used from three to 10 times. The number of times that the refiner burns the clay depends upon a comparison of the cost of new clay and its filtering efficiency with the cost of burning used clay and the filtering results obtained.

The naptha used in washing the filters, and which contains the oil washed out of the clay, has to be distilled to separate the naptha from the oil before it can be used again. Losses of naptha due to evaporation and redistilling constitute approximately 30 per cent of the cost of filtering petroleum products through granular fullers earth.

Agitating Oil and Earth

Agitating the oil with fine fullers earth has been found commercially practicable chiefly in the bleaching of light oils, such as kerosenes and napthas. The agitation of lubricating oils with fine fullers earth has thus far not met with very much success. The disadvantage of this method is the clay must be used dry. It is very difficult to put this fine earth through a kiln without having it fused.

The so-called "contact process," while new, is being installed by at least one Mid-Continent refiner and another is considering it.

In this case the bleaching medium is an acid treated clay. Of the crude clays which are amenable to an acid tratment there are three main types, or clay minerals, that have thus far been found to show this property to any appreciable degree. All three of them are found to any great extent only in California. Halloysite is of the type of the so-called Death Valley clay; pyrophillite shows a different cleavage or fracture from halloysite; montmorrillonite, likewise, has a characteristic cleavage or fracture by which it is recognized.

It has been found that if the clay resulting from the acid treatment of montmorrillonite is considered as 10 in efficiency, the highest efficiency that has been found in the clay resulting from the acid treatment of halloysite or pyrophillite is only 5. It is worth noting that granular fullers earth, used and reused to the limit, is in most cases 1 or less.

The essential features of the process of treating the clay consists in treating the earth with water, and grinding wet to a 200 mesh fineness. The wet earth is then digested with weak acid, dried, and the dried cake roughly ground to 100 mesh fineness.

The equipment required for a filtering capacity of 700 barrels a day of 24 hours would consist for the main part of three filters having 46 square feet of surface each, six motor driven centrifugal pumps, three heat exchangers, and the equipment with agitation mechanism of six 18-ton filters previously used for oil filtration through granular fullers earth. The cost of equipment and installation of this would not exceed $12,000. Three filters of the size mentioned would give a filtering capacity of approximately 20 per cent more than the expected requirements. This provides time for washing, drying, dumping the filters, maintenance work, and a safe margin if it is required to force the capacity of the filter plant to meet unexpected conditions.

Where a change is made from oil filtration through fullers earth to the "contact process" it is possible, in most cases, to place these filters, heat exchangers, and pumps in the space below the filters used in the old process. Where a refinery needs 700 barrels a day filtering capacity, the installation of three uits, each unit having two agitation tanks, will prove sufficient to meet requirements.

The operation of the filtering process is comparatively simple. The oil after acid treatment in the agitators, but without being neutralized with caustic soda, soda ash, or ammonia is pumped to the open top agitation tanks in the filter house. It might be mentioned here that although clay treating of the oil after acid treatment and without neutralization is advocated for most crudes, it has been found advantageous to modify this method somewhat on Gulf Coastal crudes. The detailed changes in the process that are recommended as giving the best results are, unfortunately, not available for publication at present.

After the agitation tank is filled with oil, the oil is agitated by means of mechanical stirrers, and the desired quantity of clay added. The amount of clay to be added will vary from 1 to 5 per cent by weight, the quantity depending upon the nature of the oil and the amount of decolorization required; with cylinder stocks it may be as much as 20 per cent by weight.

This oil-clay mixture is then heated by coils placed around the outside of the agitator and also by the heat exchangers. The mixture gravitates to a pump, discharges through an exchanger, and then goes back to the agitating tank. The heat is obtained from live or exhaust steam according to the temperature desired.

After adding the clay agitation is continued and at the same time the temperature is gradually raised. The best temperature must be determined by practice, but it may be stated that it will range from 250 to 350 degrees F. There will be a certain amount of foaming due to the moisture in the clay. For this reason the temperature should not pass above about 240 degrees F. until the foaming has decreased. Then the temperature may be raised quite rapidly.

Water Desirable in Clay

Water in the clay used in the "contact process" is very desirable for the following reasons:

1. The evolution of steam from the clay particle helps to maintain a perfect agitation as each particle is raised to the top to discharge steam.

2. A layer of steam over the surface of the oil removes all danger of any oxidation.

The oil is held at the desired temperature until the evolution of steam has ceased, and then for 10 to 15 minutes additional time, continuing agitation. It is now ready to filter, the filtration taking place while the oil is hot. The agitation is stopped and a portion of the clay allowed to settle. Suction is taken from the tank through a swing line, and the oil pumped through a filter of a certain type to remove the suspended clay.

The oil should be cool after emerging from the filter. The length of time for the entire operation from normal temperature to a clay treated oil ready to pass through the filter should not exceed one and one half hours on any sized batch. Subsequent filtration depends upon the size of filter used.

When one tank of oil is ready for the filter another tank is being charged and heated while the first one is being filtered, thus securing practically a continuous operation.

When the filter is so full of clay that maximum efficiency is no longer obtainable, compressed air is passed through the cake to dry it. A cake on the filter exceeding one-half inch in thickness seems to be the point at which the efficiency of the filter begins to decline. If it is desired to clean the cake and remove all the oil, a light distillate can be discharged through the filter, the cake blown with air, the filter opened and the cake dumped.

The used clay is approximately 50 per cent efficient. It may be mixed with new

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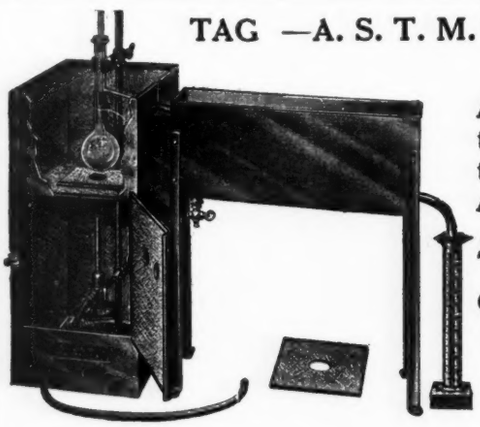

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clay in amounts sufficient to yield the maximum filtration efficiency as obtained when all new clay is used.

Points of Superiority

The main points of superiority of the "contact process" of filtration over other existing methods are as follows:

Oil resulting from tratment with acid treated clay is, in most cases, the same or even higher in viscosity than the same oil filtered by percolating through fullers earth. Gulf coastal lubricating oils have been raised from a viscosity of 523 to 546 at 100 degrees F. A Mid-Continent lubricating oil showed a viscosity of 245 at 100 degrees F. before clay tratment, and afterwards of 247 at 100 degrees F.

Oils made by the "contact process" will hold their color at normal or increased temperatures longer than oils filtered through fullers earth.

Oil losses by this method are practically nothing, due to the small amount of clay used as compared to the large amount of granular fullers earth employed in the percolation method.

Acid treated clay generally has 50 per cent efficiency on second use without any revivication or burning. This is in contrast to the heavy expense of burning granular earth for refuse.

The time consumed in turning out a batch of oil by the "contact process" is a fraction of that necessary for percolation.

The initial cost of a plant for fine clay process is usually about one tenth of that of a percolation plant. Likewise, the cost of installing a fine clay system in a plant equipped for percolation is merely nominal.

The fine clay process eliminates neutralization after the acid treatment of the oil, thus doing away entirely with the introduction of water in large amounts into the oil and its attendant danger of forming emulsions.

When this process is used less acid is required for trating the oil than is normally used for oil filtration through fullers earth.

A large saving is made in the labor costs, since one man mixes in the clay, agitates, heats and filters any sized batch.

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

4945.—**Lubricating and mineral oils.**—Italy. Agency and purchase. Quotations, c. i. f. Italian port. Correspondence, Italian or French.

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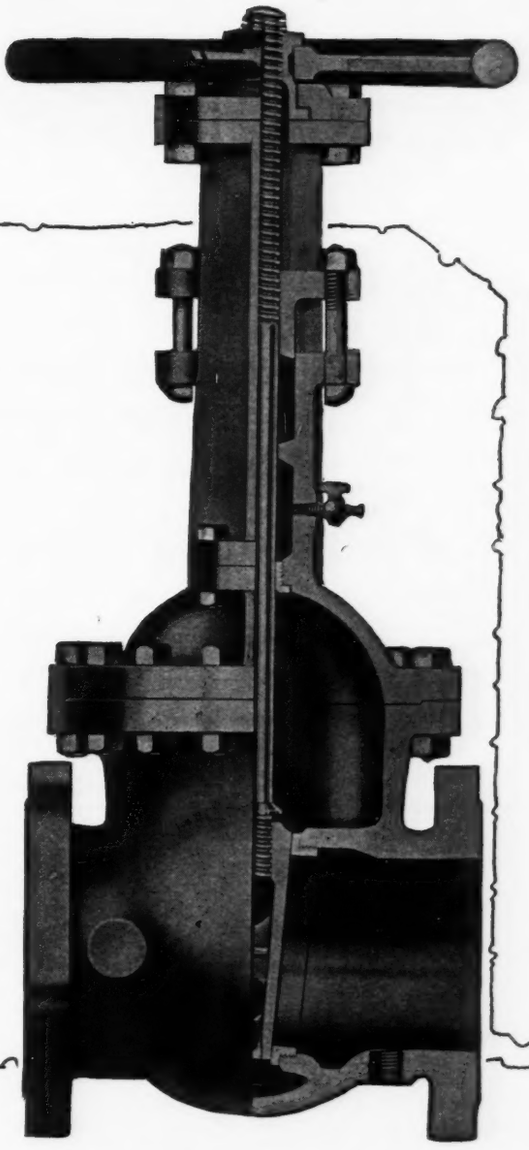
Get in touch with the man qualified to occupy the position you have vacant by placing an advertisement in the Oil Industry Exchange.

CHAPMAN



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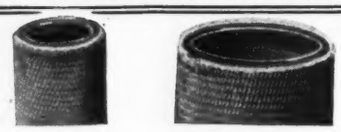

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Note the difference between TRIPLEXD (top of page) and ordinary hose shown beneath it. The TRIPLEXD increases in ***strength*** with each succeeding size. A standard ratio is maintained between inside diameter and the weight and character of material used.

The size of the Hole—inside diameter—costs us nothing. And we charge nothing for it. The weight and quality of material, and skilled workmanship, do cost us something. And they are ***worth*** something—to the hose ***user***.

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Bureau Of Mines Helps Solve Operating Problems

Staff Special

HOUSTON, Jan. 11.—How engineers of the Bureau of Mines are doing their utmost to bring about better operating conditions in individual fields is shown by a study of their methods. The work is being done with a fine spirit of co-operation, working no undue hardships on the operators, and shows up in contrast to some paternalistic attitude of government agencies.

Steps are being taken currently to provide operators in the Smackover, Ark., field with a detailed study of field conditions, especially relating to water troubles they have experienced and methods of averting their drilling and producing problems.

Such an investigation had earlier counterparts in the preliminary report issued to directly interested operators in the Mexia field and a similar mimeograph covering the "fish-pond area," to the northeast of the original development. Now, in addition to the work at Smackover, which is being carried on through the Dallas office of the Bureau of Mines, its engineers have an investigation under way in the Currie-Richland section. This latter area is northeast of Mexia, and in Navarro county, Texas, where water troubles have been unusually great.

Similar methods to those in co-operative work in parts of Oklahoma are utilized in the Texas fields investigated, as well as Smackover. Varying conditions naturally are encountered in the individual fields and to the extent made necessary by this fact the methods of the Bureau engineers are adapted to the changed situation. Fundamentally, however, the work is carried on under similar conditions in the various fields studied.

When the Mexia work was under way cross-sections of the fields were built up and studied by the Bureau of Mines engineers in carrying their investigation to the point of determining where the various kinds of water trouble were the well factors involved. In certain parts of the field, the operating problems encountered resulted from edge water, in others from bottom water and in relatively few instances from top water. These cross-sections constructively studied from the viewpoint of the engineers, it was possible to make recommendations toward prolonging the life of production and combatting hurtful conditions.

The building up of cross-sections was approached from two viewpoints, i. e., that showing general conditions in the field and that specifically relating to individual properties. Well logs and other data of more or less confidential character were obtained from the several operators whose properties were located within the area studied. These data made it possible to form conclusions and make general recommendations on the one hand; whereas on the other hand it was possible to make specific recommendations regarding individual properties without disclosing

to a competitive operator conditions on an adjoining lease.

Where two properties adjoin and cross-sections were made up on wells located on an individual property the parts of the report relating thereto were disclosed only to the owner of that lease. Similarly, the owner of the adjoining lease received only the cross-sections and conclusions reached with regard to operations on his property and the conditions there obtaining. Thus the confidential character of company information was preserved, the Bureau of Mines engineers at the same time being in position to make recommendations that would preserve the productive life of the field beyond the period otherwise possible; and it was the function of the engineers also to make suggestions that would permit both operators to gain greater maximum recovery than would have been without the Bureau's co-operation.

Such, in fine, is the work being carried on. It varies from the more simple expedient in preliminary work of constructing peg models of a field to the more complicated study of engineering that gets down to detailed operating conditions and suggestions for combatting problems as they come up. In all cases the work is important and accumulates value to the field operator as development progresses from one phase to another.

Work under way in the Currie-Richland section of Texas is being carried on currently by P. S. Haury and R. B. Kelly of the Dallas office; H. W. Bell, engineer in charge of the Dallas office, and C. O. Rison, the Bureau's driller in this district, are temporarily located at El Dorado, Ark., where they are carrying on the Smackover investigation.

Sets New Sales Record

Staff Special

OKLAHOMA CITY, Jan. 11.—A record of 19,771 gallons of gasoline sold from its new No. 6 station at 17th street and Clessen Boulevard was established by the Marland Refining Co. here yesterday. Forty-three Marland station attendants were on duty from six in the morning until 10:30 P. M., serving nearly 5,000 automobiles, which is estimated as being about 60 per cent of the automobiles in the city.

The new station is located on a triangular plot and the station itself is triangular, carrying out the Marland trademark. Three drives are provided, nine gasoline pumps, 10 lubricating oil pumps, 20 water and air lines and two concrete greasing pits. The station is equipped with Wayne pumps and compressors.

With as many as 30 cars in line at certain periods of the day, five of the city's traffic policemen assisted in directing motorists to avoid congestion. The policemen and Marland attendants were given an oyster supper at the Huckins hotel after work.

A half gallon can of Marland oil was given each customer on the opening day. Although the station started with 5,000 gallons of gasoline three large White trucks were kept busy keeping a supply ahead of the pumps.

Cut your operating costs Make your customers permanent

RAND McNALLY PATENTED SELF-INDICATING COUPON BOOKS dispense with costly bookkeeping. They eliminate the constant handling of cash, with attendant errors, disputes and waste of time. They provide a sure and automatic check on daily sales. They are convenient for your customers to use, and insure you of their continued patronage.

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Write us to-day for complete information about RAND McNALLY COUPON BOOKS with the "stepped" feature. We will be glad to submit samples and to explain in detail the simplicity and economy of their use.

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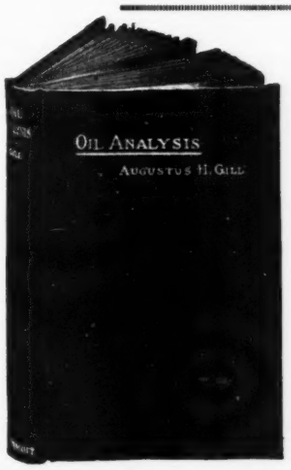

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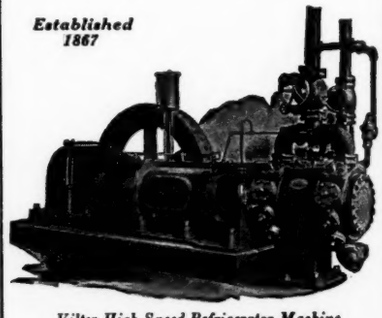

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Industrial Notes

The Wayne Tank & Pump Co., Fort Wayne, Ind., celebrating its thirtieth birthday anniversary, has moved its executive offices into a handsome new two-story office building which is separated from the main plant buildings and is modern in every respect. It is of fire-proof construction, of tapestry brick, and is said to be one of the most distinctive industrial buildings in Indiana.

Thirty years ago the Wayne company began the manufactture of oil storage tanks in a small way and today it is one of the largest manufacturers in its line, it thas direct branches in every large city in this country and is well represented abroad.

The products now consist of oil pumps and storage tanks from the small portable size to large industrial equipment, oil filtration systems, oil burning equipment, air compressors and the Wayne Rapid-Rate water softening system. The last named product is a development of the Borrowman patents which the Wayne company acquired a year ago.

Water softening systems are now made for both industrial and domestic installation and to care for the increased production on this equipment made necessary by a growing demand, a new building devoted to treating the mineral used in the softener has just been completed.

A new light metal tank plant has just been occupied and the painting, crating and shipping departments have also just been enlarged.

The cost of the plant improvement, exclusive of the administration building, amounts to $250,000.

* * *

The Gasoline Products Corp., 700 Baltimore avenue, Kansas City, and 52 Broadway, New York, announces that C. B. Kennedye, formerly district manager for the Brown Instrument Co. in St. Louis, became affiliated with it Jan. 1. Mr. Kennedye's headquarters will be in Kansas City but he will spend most of his time in traveling through the oil country where he is well acquainted through eight years' contact with refiners in behalf of the Brown company.

* * *

The Chain Belt Co., Milwaukee, has announced the appointment of Fitch S. Bosworth as manager of its Chicago office. Mr. Bosworth has been in charge of the company's St. Louis office for three years and has specialized on chain and conveyor engineering problems. With him will be associated Raymond X. Raymond formerly of the company's export sales department at Milwaukee. Thomas F. Scannell of the Chicago office has been placed in charge of the St. Louis office.

* * *

The Uehling Instrument Co., Paterson, N. J., has appointed the Mine & Smelter Supply Co., El Paso, Tex., as its representative for carbon dioxide and other power plant recording instruments in Arizona, New Mexico, western Texas and Mexico north of Mexico City.

Good Steel Barrels Fairly Priced

BENETCO Steel Barrels are made in all standard styles, of best materials, and are sold at prices which only volume production could make possible.

No. 3—Shipping and Storage, 5 to 110 gallons.

No. 2—For Semi-Solids, with either friction or bolted cover, and with 9 or 15½″ opening. 5 to 55 gallons.

No. 6—Extra Heavy, with separate hoops. 55 to 110 gallons.

And many other styles. Ask for catalog and quotations.

Wilson & Bennett Mfg. Co.
6528 S. Menard Ave., Chicago, Ill.
Sales Representatives in All Principal Cities.

BENETCO

Refining

The revised second edition of PETROLEUM REFINING by Andrew Campbell, has been completed and will tell you about the examination of crude oil, distillation, engineering specifications and distribution of products. It contains 138 illustrations and 29 folding plates.

You may obtain all this information promptly by sending us your check for $8.50.

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SINCLAIR OIL BUILDING 45 Nassau St., New York

REFINERY-TANK WAGON MARKETS

Increase In Mid-Continent Crude Price Unsettles Refinery Market

(Complete Refinery prices, page 91)

Staff Special

TULSA, Jan. 13

THE Mid-Continent refinery market was unsettled this morning when the Prairie Oil & Gas Co. advanced all grades of Mid-Continent crude 10 cents a barrel. Quotations of many refiners were temporarily withdrawn until crude costs could be figured in with current operating costs and prices re-arranged.

A few plants raised quotations ½ cent a gallon on all grades of gasoline and 5 cents a barrel on fuel oil as soon as the announcement reached them. Others were content to move Navy at from 11½ to 11¾ cents a gallon on orders that came in during the morning.

It is expected that the market will remain in an unsettled condition for several days until the attitude of buyers is ascertained.

Establishment of the new grade for crude of 41 gravity and over at $2.10 a barrel will increase the difficulties of many of the Independent refiners. Since the former graded price was put into effect the Independents have been able to obtain much of the oil of 40 gravity and better at from 20 to 30 cents above the posted price of 39 gravity oil and thus get excellent gasoline crude at a price which compared favorably with the general market on other grades.

Marland Paid Higher Rate

Marland interests were the first to recognize the superior grade of 41 gravity oil by paying $2 a barrel for it when the highest price paid by the major companies was $1.80. It is believed that the Prairie saw a new general price for the higher stuff coming because of the proposed pipe line of Sinclair into the Tonkawa field.

General opinion is today that the increased crude price will prove to be a blessing in disguise to the Mid-Continent market. While it will increase costs it is expected that the raise will justify recent advances in gasoline prices in the eyes of the trade. In addition it is expected to precipitate a rush of buying from jobbers who have been holding out of the market in the hope that recent prices would not hold.

Experience of refiners has been that jobbers are rarely willing to buy gasoline until the general market level takes a sharp upward turn and gives evidence of continuing upwards consistently.

Refiners who have contracted a large part of their output on a margin under the tank wagon are particularly pleased with the advance. They believe that it will remove all fear of a further cut in Indiana territory and that an advance may possibly be expected.

Light oils maintained their position without material change until today. While some concessions were made to obtain sales on lighter gravity motor fuels there was no tendency to lower prices on new Navy.

A definite policy of storage for summer business has been adopted by one or two refiners. That is the case, thus far, only with corporations which maintain their own distributing systems. One refiner who had his price on new Navy pegged at 11¾ to discourage orders without absolutely refusing to quote, has raised to 12¼ cents a gallon. It is stated that at least two others have made the same move. In this particular case the refiner made some sales at the price he had established last week.

But a majority of the refiners are not in a position to refuse orders on Navy. They desire to move at least a reasonable part of their output to provide capital for future operations. Such plants have been accepting 11½ cents direct from the trade and were selling to responsible marketers at 11¼ cents until today.

One refining organization with an extensive distributing system in the Middle West adopted a storage program last week and withdrew quotations. But weather conditions have been so fine in his distributing territory that his stations have ordered gasoline so rapidly that all current production has been taken and stocks depleted.

The only price concession on Navy which came to the surface this week was from a refiner who found himself short on clean cars. He made a sale of a small quantity of that commodity at 11 cents in buyers' cars. The transportation situation generally is improved to such an extent, however, that opportunities of the character mentioned are few.

Brokers Have Lean Days

About two weeks ago considerable discussion developed among refiners as to the advisability of requiring a certain standard of practice and financial responsibility on the part of brokers to whom material might be sold. No definite action has been taken on the part of the refiners as an organization. Nevertheless the wheatless and meatless days have descended upon the average broker since light oil prices have turned upward.

Much of the demoralized condition of the gasoline market was laid at the door of the broker who was selling short and continually breaking down the market to cover his commitments. But short selling has been stopped abruptly.

A number of refiners have adopted a policy, on their own initiative, of refusing to sell products to a broker unless he is one who has shown fairness in all his dealings. Sales resistance has been rather stiff since the upturn in the market so that the broker has been unable to develop orders. Taken as a whole the new year has not been bright for the desk, chair and telephone broker of refined products.

The new year has brought no inquiries from the exporters for new Navy. One buyer has moved limited quantities of high gravity material but there has been so little export demand that the market is unaffected.

Price cutting by one or two organizations which have sought to develop business overseas, has demoralized the export market, according to the representative of one company who was in Tulsa Wednesday. He reported that the price cutting had succeeded merely in breaking down the level of quotations of strong organizations on the eastern seaboard.

One exporter who has bought large quantities of Mid-Continent gasoline from time to time, is reported to have large stocks in his terminal tanks which he is unable to move under current conditions without taking a loss. It is said that the stocks of the one exporter approximate 500,000 barrels.

Some of the refiners are predicting that the export situation will become clarified within the next month or six weeks and that buying will be resumed on an active basis.

Jobbers Buying Slowly

Domestic sales of light oils have been slow. The most important order which was placed as far as is known was from a jobber who desired 50 cars for early shipment.

Refiners have been meeting no objections on their prices from regular jobber customers who have an arrangement whereby their requirements are met on the basis of market at date of shipment. But business has been light with the jobbers who shop around whenever they desire motor fuel, particularly as compared with the period just before the holidays.

Natural Gasoline

Buying of natural gasoline by refiners in the Mid-Continent has been at a low point for the past 10 days. In spite of that fact prices appear to be materially stronger today than at the opening of the year. One of the major manufacturers has been forced to go into the open market to obtain enough material to fill contracts and spot orders which he has accepted from distant plants. His buying has done much to force the market on 80-88 gravity compression to 11¼ cents a gallon and upwards.

Refiners have maintained their prices on naptha firmly at from 10 to 10½ cents a gallon to the blenders. The result has been that blends have continued to be closely held to figures which compare favorably with straight-run new Navy.

Kerosene

Kerosene is quiet. Quotations are generally held at 4½ and 4¾ cents a gallon but orders have been few. With the prospect that jobbers will soon anticipate their spring demand for kerosene for farm purposes it is felt by some refiners that

(Continued on page 94)

FOR the jobber who wants service—*not* disappointments—satisfaction—*not* excuses—and results—*not* alibis.

PENN AMERICAN

dependable Pennsylvania products

PENN AMERICAN REFINING COMPANY
Refiners of Pennsylvania Petroleum
HOME OFFICE: Oil City, Pa.
REFINERIES: Oil City and Rouseville, Pa.
Established 1886

Introducing "*Landmarks of Petroleum History*"

In the rush and bustle of business it is always easy to forget what we owe to those who blazed the trail for us. Starting today and appearing every other week, alternating with our regular messages, we therefore propose to devote a part of our space to a series of illustrations which will remind us all of those who pioneered.

"*THE birthplace of the oil industry*" is marked by the granite boulder shown in the photograph above. Look closely and you will see, down in the lower right-hand corner, a short section of casing and of the original driving pipe of the famous Drake Well. The Drake Well was drilled in 1859 on a small island a few miles up Oil Creek from the Penn American refineries.

LANDMARKS OF PETROLEUM HISTORY

Refinery Markets On All Products

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas

FOLLOWING are the average market prices on the more [illegible] products in cents per gallon f. o. b. in Oklahoma, Texas refinery and Pennsylvania. These are actual prices at which the bulk of each product is moving from the refineries at the present time. Anyone having knowledge of different prices which have obtained on any considerable quantity of any of the products mentioned will greatly favor us by advising us at once.

GASOLINE AND NAPTHA

PENNSYLVANIA	Prices Jan. 15	Prices Jan. 8	Prices Jan. 2
50 52 Naptha	13 -13½	13 -13½	12¾-13
54 Naptha	-14	-14	13¾-14
58 Naptha	14½-14¾	-14¾	14½-14¾
60 Straight-run gasoline	15¾-16	15¾-16	15¼-15¾
62 Straight-run gasoline	17 -17¼	17 -17¼	16½-17
64 Straight-run gasoline	18½-19½	19 -19¼	18½-19
68 Straight-run gasoline	23 -24	23 -24	23 -23½
68-70 Blend, 450 E. P.	14¾-15	-14¾	14½-14¾
60-62 Blend, 450 E. P.	14¾-15	-14¾	14½-14¾
62-64 Blend, 450 E. P.	14¾-15	-14¾	14½-14¾
66-68 Blend 440 E. P.	-15¼	15 -15¼	15 -15¼
68-70 Blend, 440 E. P.	-15¼	15 -15¼	15 -15¼
68-70 Blend, 420 E. P.	15¾-16	-15½	-15½
OKLAHOMA			
48-50 450 E. P naptha	10 -10¼	10 -10¼	10 -10½
50-52 450 E. P. naptha	10¼-10½	10¼-10½	10¼-10¾
56-58 450 E. P. gasoline	10¾-11	10¾-11	10¾-11
55-57 (New Navy), 457 E. P. 131 i.b.p.	11 -11¼	11 -11½	11 -11¼
58-60 (New Navy), 457 E. P. 131 i.b.p.	11¼-11¾	11¼-11¾	11½-11¾
60-62 400 E. P. gasoline	13¼-13¾	13¾-13¾	13¾-13½
64-66 375 E. P gasoline	15¼-15¾	15¾-15¾	15½-16
68-70 350 E. P. gasoline	17 -17¼	17 -17½	17 -17½
NORTH TEXAS			
48-50 460 E. P. naptha	10¼-10¾	8¼- 8¾	8¼- 8¾
50-52 450 E. P. naptha	10½-11	8½- 9	8½- 9
56-58 450 E. P. gasoline	11 -11½	10½-11	10½-11
58-60 400 E. P. gasoline	11¼-11¾	10¾-11¼	10¾-11¼
60-62 400 E. P. gasoline	13¼-13¾	13 -13½	12¾-13¼
64-66 390 E. P. gasoline	14¾-15¼	14½-15	14 -14½
58-60 New Navy Spec. gas	11½-12	11 -11½	11 -11½
LOUISIANA-ARKANSAS			
51-53 460 E. P. naptha	8½- 9½	9½-10	9½-10
56-58 450 E. P. Gasoline	10¾-11	10 -10¼	10 -10¼
58-60 437 E. P. New Navy Gasoline	11¼-11½	10¾-11¼	10¾-11¼
64-66 400 E. P. Gasoline	14¾-15	15 -15½	15 -15½

NATURAL GASOLINE

OKLAHOMA			
Grade A, 72-78, 375 E. P., 90% Rec	12¼-13	12 -12¾	12 -12½
Grade B, 76-82, 375 E. P., 85% Rec	12 -12¼	11½-12	11½-12
Grade C, 80-88, 350 E. P., 78% Rec	11¼-11½	11 -11¼	10¾-11¼
Grade D, 88-92, 350 F. P.	11 -11½	11 -11¼	10¾-11¼
(Motor Natural Gasoline—Blends)			
Grade 1, 58-62, 437 E. P., 91% Rec	11 -11½	10¾-11	10½-10¾
Grade 2, 58-62, 450 E. P., 90% Rec	10½-11	10½-10¾	10¼-10½
Grade 3, 64-66, 440 E. P., 88% Rec	11 -11¼	11 -11¼	10¾-11
Grade 4, 66-70, 435 E. P., 85% Rec	11¼-11½	11 -11½	10¾-11
NORTH TEXAS			
Grade A, 72-78 Absorption	12¼-13	11½-12	11¼-11¾
Grade C, 80-88 Compression	11 -11¼	10¾-11¼	10¾-11¼
(Motor Natural Gasoline—Blends)			
Grade 1, 58-62, 437 E. P.	10½-11	10½-11	10¾-11¼
Grade 2, 58-62, 450 E. P.	10¾-10¾	10 -10½	10½-11

BURNING OILS

PENNSYLVANIA			
45 Water White	7½- 7¾	7¾- 8	7½- 7¾
46 Water White	8½- 8¾	8¾- 9	8¼- 8½
47 Water White	9¾-10	9¾- 10	9½- 9¾
300 Burning Oil	- 7½	- 7¼	- 7½
OKLAHOMA			
41-43 Water White	4½- 4¾	4½- 4¾	4½- 4¾
42-43 Water White	4⅝- 5	4⅝- 5	4¾- 5
45-47 Distillate 520 E. P.	6 - 6¼	6 - 6¼	6 - 6½
46-48 Distillate 500 E. P.	6¾- 7	6¾- 7	6¾- 7¼
NORTH TEXAS			
40-42 Prime White Distillate	3¾- 4¼	3¾- 4¼	4 - 4½
41-43 Prime White Kerosene	4 - 4½	4 - 4½	4¼- 4¾
41-43 Water White Kerosene	4¼- 4¾	4¼- 4¾	4½- 5
LOUISIANA-ARKANSAS			
41-43 Water White Kerosene	4¾-5½	5¼- 5½	5 ¼ - 5½

NEUTRAL OILS

PENNSYLVANIA	Prices Jan. 15	Prices Jan. 8	Prices Jan. 2
(Viscous Test 70)			
200 Vis. No. 3 Assoc. Filt.	24½-25½	24 -25	23½
180 Vis. No. 3 Assoc. Filt.	23 -23½	22½-23	21
150 Vis. No. 3 Assoc. Filt.	18½-19	18 -18½	17½-18
(Non-Viscous)			
34 350-360 Flash	7½- 7¾	7½- 7¾	7 - 7¼
36 Miners Neutrals 300-305 Flash	6¾- 7¼	6¾- 7¼	6¾- 7
OKLAHOMA			
(Viscous test 100)			
70 Vis. at 100°F. No. 2 Color	5 - 5¼	5 - 5¼	5 - 5¼
70 Vis. at 100°F. No. 2½ 3 Color	4¾- 5	4¾- 5	4¾- 5
100 Vis. at 100°F. No. 2 Color	6 - 6¼	6 - 6¼	6 - 6¼
100 Vis. at 100°F. No. 2½-3 Color	5½- 6	5½- 6	5½- 6
200 Vis. at 100°F No. 3 Color	12 -12½	12 -12½	12 -12½
200 Vis. at 100°F. No. 5 Color	10½-11	10½-11	10½-11
240 Vis. at 100°F. No. 3 Color	14¼-14½	14½-14½	14 -14½
240 Vis. at 100°F. No. 5 Color	12½-13	12½-13	12½-13
280 Vis. at 100°F. No. 4 Color	15½-16	15½-16	15½-16
280 Vis. at 100°F. No. 6 Color	13½-14	13½-14	13½-14
300 Vis. at 100°F. No. 6 Color	15¾-16¼	15¾-16¼	15¾-16¼
SOUTH TEXAS			
(Viscous test 100; cold test 0)			
100 Vis. No. 2 Color Unfilt Pale	6½- 8	7½- 8	7½- 8
150 Vis. No. 2½ Color Unfilt. Pale	10 -10½	10 -10½	10 -10½
200 Vis. No. 3 Color Unfilt. Pale	9½-10½	12½-13½	12½-13½
300 Vis. No. 3 Color Unfilt. Pale	12 -13½	15 -16	15 -16
500 Vis. No. 3½ Color Unfilt. Pale	17¾-19	18 -19	18 -19
750 Vis. No. 4 Color Unfilt. Pale	26 -27	26 -27	26 -27
150 Vis. No 1½ Color Filt. Pale	-20	-20	-20
200 Vis. No. 2 Filt. Pale	-24	-24	-24
300 Vis. No. 2 Color Filt. Pale	-28	-28	-28
500 Vis. No. 2½ Color Filt Pale	-34	-34	-34
750 Vis. No. 2½ Color Filt. Pale	39 -41	39 -41	39 -41
200 Vis. No. 5½ Color Red Oil	11 -12	11 -12	11 -12
300 Vis. No. 5½ Color Red Oil	13½-14½	13½-14½	13½-14½
500 Vis. No. 6 Color Red Oil	16 -17	16 -17	16 -17
750 Vis. No. 6 Color Red Oil	24 -25	24 -25	24 -25

CYLINDER OILS

PENNSYLVANIA			
600 Steam Refined	10 -10½	9¾-10	9½-10
635 Steam Refined	-13	12½-13	12 -12½
650 Steam Refined	14 -14½	13½-14½	13½-14
600 Flash	17½-18	17 -18	16¾-17¾
600 Warren E	17½-18	17½-18	17 -18
600 Oil City E	14½-15½	14½-15	14¼-15
600 Medium Filtered (D)	22½-23	22 -23	22 -23
Cold Test Stocks (bright filtered)	35 -36	35 -36	33½-35
Cold Test Stocks (dark filtered)	32 -34	32 -34	30 -32
Black Oil	7 - 8½	6½- 8	6½- 8
OKLAHOMA			
Bright Filtered Stock	26 -28	26 -28	26 -28
Medium Filtered Stock	16½-17	16½-17	16 -16½
600 Steam Refined Olive Green	5½- 6	5½- 6	5½- 6
600 Steam Refined Dark Green	4¾- 5	4¾- 5	4¾- 5
Black Oil	4½- 4¾	4½- 4¾	4½- 4¾

WAX

PENNSYLVANIA			
(Per Pound New York)			
122-124 White Crude Scale	2½- 2¾	2½- 2¾	2½- 2¾
124-126 White Crude Scale	2¾- 2⅞	2¾- 2⅞	2¾- 2⅞
OKLAHOMA			
(Per Pound Group 3)			
124-126 White Crude Scale	2⅛- 2⅜	2⅛- 2⅜	2⅛- 2¼

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil	6¼-	6¼- 6½	5¾- 6
OKLAHOMA			
36-38 Straw Distillate	3¼- 3½	3¼- 3½	3 - 3½
32-36 Gas Oil (Gal.)	2¾- 3¼	2¾- 3	2¾- 3
24-26 Fuel Oil (bbl.)	90 -95	90 -95	90 - .95
Fuel Oil, buyers, cars (bbl)	87½-92½	87½-92½	85 - .90
NORTH TEXAS			
38-40 Straw Distillate	3 - 3½	2¾- 3¼	2¾- 3¼
36-38 Gas Oil	2⅞- 3¼	2¾- 3	2¾- 3
32-36 Gas Oil (gal.)	2¾- 3¼	2¼- 2¾	2¼- 2¾
24-26 Fuel, per bbl	.90-1.00	.85- .95	.85- .95
26-30 Fuel, per bbl	.95-1.05	.90-1.00	.90-1.00
South Texas Fuel	1.30-1 40	1.30-1.40	1.30-1.40
South Texas Gas Oil	3¾- 4	3¾- 4	3¾- 4
LOUISIANA-ARKANSAS			
34-36 Gas Oil (Gal.)	2¾- 3¼	3¼- 4	3 - 3¼
24-26 Fuel Oil (Bbl.)	.90- .95	.90- .95	.90- .95

Gasoline Weaker In Chicago Market; Premium Goods are More Popular

Staff Special

CHICAGO, Jan. 11.

USING the scratch pads of Chicago sales managers as index, there was just as much gasoline bought by the jobbing trade in Standard Oil Co. of Indiana territory during the first week in January as during the first week in December. The price has been 1 cent higher this month than a month ago which has been much to the advantage of the refiner. The additional cent has enabled some skimmers to keep their plants running, who probably would have been out of business by this time had it not been for the arbitrary decision of some of the larger operators to quote na gasoline prices under the cost of manufacture.

The low range of gasoline prices in Chicago was ¼ cent lower Friday and Saturday than last week, however. The stubbornness with which the refiners held to their cost-plus quotations was determined by the condition of their storage in all probability, the more empty space available the firmer the price. Although it was possible for a jobber to pick up a few scattering cars for a shade less, 11¼ to 11½ was the range over which the bulk of the Navy gasoline moved. Incidentally there is less Navy on the local market than one would imagine. There is a surprising amount of 60-62 and better moving through this terminal and others in this immediate section.

Premium Goods Popular

At this season of the year it is safe to estimate that fully half of the gasoline dispensed in Wisconsin is above 58-60 Navy. No jobber handles less than two grades, and five qualities is not at all uncommon. Michigan is quite like Wisconsin in the respect that its motoring public is educated to "better" gasoline. And in other states along the Canadian border, and near the lakes, much the same condition exists. Besides, in regions south of Chicago, quality motor fuel is coming more into demand each winter.

Although it has not run into any volume, there have been a few hints from the jobbing trade this week that buying for spring was being considered. In almost every marketing office in Chicago, some jobber has placed a rather healthy order. Such purchases were scarce of course but affected the refiner's frame of mind more than his grand totals. Nevertheless the bluebird is heard though ever so faintly. Coming into the market may be a slow process on the part of the jobbing trade. It is certain that jobbers' sales are not going to be much heavier for the coming six weeks than for the past six. And each will use his own judgment about when to cease operating with an empty tank and start working with a full one.

Kerosene Also Down

It was almost impossible to talk a prospect out of 5 cents a gallon for kerosene during the last few days of this week. Prices were quoted mostly in eighths of a cent, but 4¾ cents a gallon was the bottom quotation at brokerage offices. No export demand for kerosene was evinced and the present is an off season for refined oil, when a weak market may reasonably be expected, but a slight spurt in the kerosene market last week created some hopes in the trade that had to be forgotten. Volume of business in refined oil, more than its price, sloped off since the first of the year.

Gas oil retained the strength gathered last week. In some quarters it was being quoted as high as 3¼ cents a gallon, but such a figure amounted to a withdrawal of quotations by refiners who valued their gas oil at more than 3 cents a gallon for future cracking purposes. The prevailing quotation was 3 cents and in only a few places could that figure be shaded. The volume was not great. A rather panicky demand from certain quarters where threatened coal strikes are taken seriously, account for the running up of the gas oil price; that, together with the fact that refiners have no great lot of it available. Some manufacturers have been running it to fuel, while the prices were about the same, and others have been storing to take care of the needs of their cracking plants when spring actually brings a gasoline demand.

Fuel Oil Strong

Although the price did not change materially since last week, fuel oil gained strength on the market in this section. A number of large sales were consummated at $1 and that without any vast amount of conversation. It was possible however for a skillful buyer to beat the market to below 95 cents, provided he was not too particular about quality. Probably a greater volume changed hands at 95 cents than any other specific price. But there was not much Mid-Continent fuel available at certain times during the week which served as a constant stimulant to the market.

Embargo Treating Pennsylvania Refinery Markets As Trade Picks Up

(Complete Refinery Prices, page 91)

Staff Special

CLEVELAND, Jan. 15.—Just as the Pennsylvania refinery markets had picked up considerable headway and the outlook was more promising than for many weeks, the Pennsylvania railroad today placed an embargo on the movement of all freight except food. This has practically tied the Pennsylvania district in a knot as a majority of the plants are dependent upon the Pennsylvania in one way or another.

The notices posted by the railroad were indefinite and refiners were at a loss to know why freight should be tied up at this time and also how long they must endure the embargo. Switching of cars from one plant to another in the Oil City district was also cut out, one refiner being unable to get coal which was on another railroad but one mile away from his plant.

Prices have been firm for all products except kerosene but some operators feared that a continuance of the embargo over three or four days might cause a weakening until they are able to get a shipping outlet.

The neutrals were the strongest of the list of refined products. The demand has been large and stocks are low at most plants. The movement of cylinder stocks has been good and quotations for most products were ½ cent a gallon higher than last week.

An increase in the volume of gasoline business was noted during the week. Prices held to about the same level a week ago with the exception of blended motor fuels which moved up ¼ cent in line with the higher price of naptha.

Fuel oil has been firm with little of it to be obtained. This is still being accumulated for cracking when the spring gasoline trade opens. Kerosene has been the slowest of the products and the price at the refineries was cut ¼ cent.

Kentucky

Demand for gasoline at the Kentucky refineries was good last week and very little free motor fuel was to be had. The price for 58-60 was firmly maintained at 13½ cents which was in line with the Mid-Continent price before the advance in Mid-Continent crude. Buying of kerosene was quiet with refiners quoting 5¾ cents a gallon.

Because of the higher price in Pennsylvania, trade for Kentucky gas oil was brisk and little or none was to be had after the first few days. Refiners who received urgent requests from regular customers went scurrying about for this product for which they paid 4⅝ cents, some even as high as 4¾ cents. Practically all of the Kentucky fuel oil output has been sold up. Quotations on spot were 4 cents.

Tank cars continue scarce although the situation in the Cincinnati switching district was a little better. Buyers' cars commanded a premium.

S. Texas Market Improves

(Complete Refinery Prices, page 91)

HOUSTON, Jan. 13.—South Texas lubricant refiners report more business the first half of January than in all of December. Domestic jobbers are back in the spot market for tank car shipments and others are signing customary January contracts. Movement of cars against old contracts also is reported to be better.

Refiners point out that the changed condition does not represent any buying rush but that the upturn since Jan. 1 is sufficient to be gratifying. Gas oil is in somewhat greater demand with a tendency to firm prices around recent levels. Fuel oil is unchanged.

BARTLESVILLE, Jan. 13.—Additional buildings to house the Bureau of Mines station here will be asked of the present session of the Oklahoma state legislature by T. E. Swigart, recently appointed superintendent. He will appear before the appropriations committee of the house and senate to explain the needs.

The bureau will ask the state for $45,000 for the construction of a building which will permit it to double its present force and provide needed laboratory and shop room as well as offices. No additional maintenance funds will be requested. The bureau asks $75,000 as the state's part of the expense of operating the bureau during the next biennium.

Hawkeye Oil Company Advertises All Year Gasoline To Consumers

Staff Special

CHICAGO, Jan. 12.—Hawkeye Oil Co. of Iowa recently has adopted as the slogan in its newspaper advertising "Just as good in zero weather as in Dog Days." That assurance has been printed in modest and inconspicuous type in the body of every advertisement appearing this fall, but its brevity and persistent usage has made it familiar to the trade. The statement is made in regard to Crescent Gasoline, the product which the Hawkeye pushes the year around to the public as all-year gasoline. Hawkeye uses a considerable amount of newspaper space, usually three or four-column spreads.

Crescent Gasoline is as good in zero weather as in dog days.

Recently the leading motive in the newspaper advertising has been to rebut the publicity campaign of some of the larger companies selling special winter products here. Recently a piece of advertising copy read like this:

"Years ago, after careful and scientific research, our chemists advised the use of Crescent Gasoline. Competition said different grades for different seasons was not only money wasted but absolutely unnecessary. Today the same competition advises a different gasoline for winter use than that recommended for summer. We are proud of our chemical laboratories—proud that they were the pioneers in this research work and our advice still is "Use Crescent Gasoline."

The nation-wide advertising campaign of the Independent Oil Men of America, fostered by the National Petroleum Marketers Association, is in progress now, and the Hawkeye company is tying up the national emblem with its own trade mark. In this way the national emblem of independence in the oil business is linked with the older and better known trade mark in Iowa, and soon wherever seen by an Iowa motorist the Independent eagle will stand for the same thing the Hawkeye does.

The fact the Hawkeye Oil Co. is a local institution and part of the business structure of the town is played up in the advertising. A paragraph in one of the ads is:

"The Hawkeye Oil Co. is a liberal donator to the Y. M. C. A., the Y. W. C. A., Salvation Army, Boy Scouts and all the other organizations that tend to promote the civic, religious or social life of our city. Instead of sending our money to headquarters in Chicago or New York, it stays right here at home where our headquarters are. And don't forget that the personnel of the Hawkeye Oil Co. are local men, in daily touch and co-operating with the business men of this city."

Further localizing the advertising, each piece of copy carries the names and addresses of the Hawkeye distributors in the vicinity where the paper is read. And by way of impressing on the public that the company's brand is of uniform specification, the following inside information was printed recently:

"Our products are made by three reliable refineries. One of these specializes on our famous brand. 'All Year Crescent Gasoline.' All requisitions sent to these three refineries plainly state certain specifications. Upon arrival of each car, these specifications are re-checked by our chemical laboratories to make sure that every load of gas or oil measures up to these requirements. Crescent Gasoline is the original all-year gasoline. By using it every month in the year you play safe at all times and eliminate the necessity of changing from one grade to another."

Navy Stronger In La.—Ark.

(Complete Refinery Prices, page 91)

SHREVEPORT, Jan. 13.—Prices of motor fuels have been advanced an average of ¼ cent a gallon during the past week by refiners in the Arkansas and north Louisiana district. Navy is being quoted today at from 11¼ to 11½ cents a gallon. Sales a week ago were in some instances at 10¾ cents. Export demand has been light and 64-66 gravity material is being quoted at former prices.

Premiums on El Dorado crude are being increased here and there as refiners negotiate for additional raw material. One refiner is said to have closed contracts this week for considerable crude at 25 cents a barrel over the posted market.

The Rock Island railroad is reported to be in the market for Smackover crude for fuel on its Arkansas divisions. It is understood that a contract extending over two years is desired. Sale of a half million barrels of Smackover crude to a broker for resale as fuel oil was reported this week at a price said to have been 20 cents at the well. Fuel in the Shreveport area from refiners is more plentiful and some sales have been made at as low as 85 cents a barrel to marketers.

TULSA, Jan. 13.—Two additional batteries of high pressure stills are being installed at its West Tulsa refinery by The Texas Co. Each battery consists of four stills designed to operate at 500 pounds pressure.

Three batteries of pressure stills have been added to the plant since last July when the construction program was begun. Previous installations have been of stills designed to operate at lower pressures. The plant has 18 crude stills.

GASOLINE

Whatever your requirements, Write, Wire, Telephone

Tank Car Shipments only

RANDOLPH PETROLEUM COMPANY

Producers and Distributors

Kennedy Bldg.
Tulsa, - Okla.

L. D. 80

Increase In Crude Prices

(Continued from page 89)

prices will not slip further and that some improvement may be shown.

The Barnsdall Refining Co. has closed negotiations direct with customers in Germany for the shipment of two train loads of cylinder stocks over a short period. The oil sold is one which compares with the usual olive green stock. It is stated that the sale was made on the basis of around 8 cents a gallon. Shipment of the oil is to be in bulk through the Westwego terminals of the Union Petroleum Co.

There have been no price changes announced by Mid-Continent refiners since the first of the year. Neutrals are reported to be moving only fairly well. It is expected that new crude prices will bring a general increase in all lubes within a few days.

Fuel Oil Strengthens

Gas oil has continued to show more strength through the current week. The available supply is reported to be small. Buyers are finding more and more plants retaining their gas oil for cracking purposes. Others have been throwing it into fuel to simplify refining practice.

Fuel oil was materially stiffer even before the advance in crude. Buyers were finding it increasingly difficult to buy at 90 cents a barrel in sellers' cars. The usual asking price was from 92½ to 95 cents a barrel. Some are now quoting $1.

There was no important buying evident in the field to account for the stronger position of the commodity. But contract requirements on Oklahoma refiners are such that the free fuel for the spot market is constantly growing smaller. Railroad purchasing during 1922 has been largely instrumental in steadying the fuel market.

Week's Price Changes In Tank Wagon Markets

TULSA, Jan. 15.—The Magnolia Petroleum Co., effective Jan. 9, reduced the tank wagon and service station prices of gasoline and kerosene 2 cents each at Texarkana and gasoline 1 cent at Fort Smith, Ark.

* * *

PHILADELPHIA, Jan. 15.—The Atlantic Refining Co. on Dec. 19 reduced the tank wagon and service station prices of gasoline 1 cent at Providence, R. I., Worcester, Mass., and Hartford, Conn. Gasoline prices are now 22 and 24 cents respectively, throughout Rhode Island, Massachusetts and Connecticut and 21 and 24 cents in Pennsylvania and Delaware. Kerosene is 15 cents in the New England states and 14 cents in Pennsylvania and Delaware.

NEW YORK, Jan. 15.—The Texas Co. has purchased 75,000 boxes of tin plate for containers. The present market price of tin plate is $4.75 a case, but due to foreign competition there is a little shading.

Tank Wagon, Service Station Markets
Gasoline and Kerosene

BELOW are given in cents a gallon service station and tank wagon quotations on gasoline and tank wagon quotation for kerosene, as quoted by the Standard Oil Companies, the points at which prices are given begin arranged by Standard Oil Marketing districts. By tank wagon price is meant the price to reselling agents and not the price from the tank wagon to consumers.

S. O. NEW JERSEY DISTRICT

	Gasoline T.W. Jan. 15	Gasoline S.S. Jan. 15	Oil T.W. Jan. 15
Atlantic City, N. J.	21.5	24.5	14
Newark, N. J.	21.5	24.5	14
Annapolis, Maryland*	22.5	24.5	14
Baltimore, Md.	21.5	23.5	13
Cumberland, Md.	23	25	15
Washington, D. C.	21	23	13.5
Danville, Va.	20.5	22.5	15
Norfolk, Va.	19.5	21.5	13
Richmond, Va.	22	24	13.5
Roanke, Va.	22	24	15
Petersburg, Va.	22	24	14.5
Charleston, W. Va.	20.5	22.5	13.5
Clarksburg, W. Va.	21	23	14.5
Keyser, W. Va.	22	24	15
Parkersburg, W. Va.	20	22	12
Wheeling, W. Va.	20	22	13.5
Charlotte, North Carolina*	19	21	14.5
Hickory, N. C.	19.5	21.5	15
High Point, N. C.	19.5	21.5	15
Mt. Airy, N. C.	19.5	21.5	15
Salisbury, N. C.	19.5	21.5	15
Charleston S. Carolina*	18	20	12
Columbia, S. C.	20	22	14

S. O. NEW YORK DISTRICT

†New York	22	24	15
Albany, N. Y.	22	24	14
Buffalo, N. Y.	22	24	15
Rochester, N. Y.	22	25	13
Syracuse, N. Y.	20	22	13
Boston, Mass.	22	24	14

†Note—Prices in Steel Barrels

ATLANTIC REFINING DISTRICT

Pittsburgh, Pennsylvania*	21	24	14
Philadelphia, Pa.	21	24	14
Dover, Del.	21	24	14
Wilmington, Del.	21	24	14
Providence, R. I.	22	24	15
Springfield, Mass.	22	24	15
Worcester, Mass.	22	24	15
Hartford, Connecticut*	22	24	15
New Haven, Conn.	22	24	15
Boston, Mass.	22	24	15

Note—The five New England towns named above are the principal Marketing points in Atlantic Refining Company's New England territory. S. O. New York also markets at these points.

S. O. OHIO DISTRICT

Cleveland, Ohio	19	21	13

Note—Tank wagon markets at all points in Ohio are the same as for Cleveland.

S. O. KENTUCKY DISTRICT

Lexington, Kentucky*	20	22	14
Louisville, Ky.	19	21	13
Covington, Ky.	19	21	13
Jackson, Mississippi*	17.5	19.5	12.5
Natches, Mississippi	17	19	13.5
Vicksburg, Miss.	17	19	13.5
Birmingham, Alabama*	17	19	15
Mobile, Ala.	16	18	14.5
Montgomery, Ala.	17	19	16
Atlanta, Georgia*	19	21	16
Augusta, Ga.	19	21	16
Macon, Ga.	19	21	16
Savannah, Ga.	18	20	14
Jacksonville, Fla.	17	19	14
Miami, Florida*	20	22	16.5
Tampa, Fla.	17	19	14

S. O. LOUISIANA DISTRICT

Camden, Arkansas*	17	19	14
Little Rock, Ark.	17	19	14
Alexandria, Louisiana*	17	19	14
Baton Rouge, La.	15.5	17.5	12.5
Lake Charles, La.	16	18	14
New Orleans, La.	16	18	13
Shreveport, La.	15	17	12
Bristol, Tenn.	17.5	19.5	16
Chattanooga, Tenn.	16	18	15.5
Knoxville, Tenn.	17	19	16
Nashville, Tenn.	15.5	17.5	15.5
Memphis, Tenn.	15.5	17.5	15

MAGNOLIA PETROLEUM DISTRICT

	Gasoline T.W. Jan. 15	Gasoline S.S. Jan. 15	Oil T.W. Jan. 15
Muskogee, Okla.	16	19	10
Oklahoma City, Okla.	15	18	10
Tulsa, Okla.	16	19	10
Fort Smith, Ark.	17	20	12
Little Rock, Ark.	17	19	14
Texarkana, Ark.	16	19	11
Amarillo, Texas	17	20	12
Dallas, Texas	16	19	11
El Paso, Texas	17	20	12
Fort Worth, Texas	12	15	11
Galveston, Texas	16	19	11
Houston, Texas	16	19	11
San Antonio, Texas	15	18	10

S. O. INDIANA DISTRICT

Chicago, Ill.	18	20	11.5
Decatur, Ill.	18.8	20.8	12
East St. Louis, Ill.	17.45	19.7	11.1
Joliet, Ill.	18	20	12.3
Peoria, Ill.	18.8	20.8	12
Quincy, Ill.	18.6	20.6	11.8
Evansville, Ind.	18.6	20.6	12
Indianapolis, Ind.	18.8	20.8	12.2
South Bend, Ind.	19	21	12.4
Detroit, Mich.	19.4	21.4	12.7
Grand Rapids, Mich.	19.3	21.3	12.6
Saginaw, Mich.	19.5	21.5	12.8
La Cross, Wis.	19.8	21.8	12.9
Madison, Wis.	19.9	21.9	12
Milwaukee, Wis.	18.6	20.6	11.7
Duluth, Minn.	19.8	21.8	13.1
Mankato, Minn.	19.4	21.4	12.9
Minneapolis, Minn.	19.5	21.5	13.1
Davenport, Ia.	19.1	21.1	12.4
Des Moines, Ia.	19.1	21.1	12.4
Sioux City, Ia.	18.7	20.7	12
Kansas City, Mo.	17.5	19.5	10.8
St. Joseph, Mo.	18.9	20.9	11.7
St. Louis, Mo.	18.2	20.5	11.5
Fargo, N. D.	22.8	24.8	15
Minot, N. D.	24.8	26.8	17
Huron, South Dakota*	21.6	23.6	13.6
Pierre, S. D.	21.6	23.6	13.6
Wichita, Kan.	18.4	20.4	11.3
Bartlesville, Okla.	17.5	19.5	10.4

S. O. NEBRASKA DISTRICT

Crawford, Neb.	19.25	†	13.75
Omaha, Neb.	18.25	20.25	12.25

CONTINENTAL OIL DISTRICT

Denver, Colorado*	18	20	13.5
Glenwood Springs, Colo.	23	†	18.5
Pueblo, Colo.	18	20	13.5
Basin, Wyo.	17	†	14
Casper, Wyo.	14.5	16.5	12
Cheyenne, Wyo.	17	19	13.5
Cody, Wyo.	19	†	16
Lander, Wyo.	17	†	14.5
Billings, Montana*	20	22	15.5
Butte, Mont.	21.5	23.5	16
Great Falls, Mont.	21.5	23.5	17
Helena, Mont.	21.5	23.5	17
Miles City Mont.	21	23	16.5
Ogden, Utah	20.5	22.5	16.5
Salt Lake City, Utah	20.5	22.5	15.5
Boise, Idaho	22	24	19
Albuquerque, New Mexico*	23	25	17.5

†Indicates points at which Continental Oil Co. maintains no service stations.

S. O. CALIFORNIA DISTRICT

Phoenix, Arizona*	22.5	25.5	21.5
Los Angeles, Cal.	17	20	15.5
Fresno, Cal.	17.5	20.5	17.5
San Francisco, Cal.	17	20	15.5
Reno, Nev.	20.5	23.5	19
Portland, Oregon*	20	23	16.5
Seattle, Washington*	19	22	16.5
Spokane, Wash.	22.5	25.5	20.5
Tacoma, Wash.	19	22	16.5

*Note—Besides the inspection fees collected from oil marketers, which vary from one-eighth of a cent to 1 cent and a half a gallon in different states, 18 states levy an additional tax on gasoline, usually for road purposes. In Oregon, and South Carolina the tax is 2 cents a gallon. It is 1 cent a gallon in Arizona, Arkansas, Colorado, Florida, Georgia, Alabama, Kentucky, Montana, Mississippi, Maryland, New Mexico, North Carolina, South Dakota and Washington. It is included in the tank wagon price in those states. Pennsylvania, Connecticut and Louisiana the 1 cent road tax is collected separately.

Crude Oil Prices All Fields

EASTERN FIELDS

	1923 Jan. 15	1922 High		1922 Low		1921 High		1921 Low	
Pennsylvania	$3.25	Jan. 1	$4.00	July 19	$3.00	Jan. 1	$6.10	June 29	$2.25
Cabell	2.11	Jan. 1	2.61	July 19	1.86	Jan. 1	4.46	June 29	1.11
Corning	1.75	Jan. 1	2.40	July 20	1.75	Jan. 1	4.00	June 29	4.20
Somerset	1.96	Jan. 1	2.40	July 19	1.65	Jan. 1	4.50	June 29	1.00
Somerset Light	2.21	Jan. 1	2.65	July 19	1.90	Jan. 1	4.25	June 29	.90
Ragland	1.00	Jan. 1	1.25	July 19	1.00	Jan. 1	2.60	June 29	.60

Somerset prices include advance of 6 cents on oil run on and after Oct. 1.

CENTRAL STATES FIELDS

Wooster	$2.00	Jan. 1	$2.70	Sept. 21	$1.90	Jan. 1	$4.05	June 27	$1.80
Lima	2.08	Jan. 1	2.48	July 20	1.98	Jan. 1	3.73	June 27	1.58
Indiana	1.88	Jan. 1	2.28	July 20	1.78	Jan. 1	3.63	June 27	1.38
Princeton	1.87	Jan. 1	2.27	July 20	1.77	Jan. 1	3.77	June 27	1.27
Lodi	2.00	Jan. 1	2.70	July 20	1.90	Jan. 1	4.00	June 27	1.80
Illinois	1.87	Jan. 1	2.27	July 20	1.77	Jan. 1	3.77	June 27	1.27
Waterloo, Ill	1.35	Jan. 1	1.75	July 20	1.25	Jan. 1	1.75	June 27	.75
Plymouth	1.25	Jan. 1	1.65	July 20	1.15	Jan. 1	3.48	June 27	.65
Canadian Petrolia	2.38	Jan. 1	2.88	July 20	2.38	Jan. 1	4.13	June 27	1.98
Western Ky	1.90	Jan. 1	2.40	July 19	1.65	Dec. 1	2.40	June 27	.58

MID-CONTINENT AND NORTH TEXAS FIELDS

Effective Jan. 13, the Prairie Oil & Gas Co. increased the posted price of Mid-Continent and north Texas crudes it purchases by 10 cents a barrel and added a new grade, 41 degrees and over. Mid-Continent Crude was put on a gravity basis by this company, Nov. 22.

Below 28	1.00	35-36.9	1.50
28-29.9	1.10	37-38.9	1.70
30-32.9	1.20	39-41	1.90
33-34.9	1.35	41 and above	2.10

Other companies followed the original posting Nov. 22 at once except Magnolia which posted its schedule on Nov. 25. On Healdton crude, where Prairie does not buy, Sinclair made the gravity schedule effective Nov. 22, but after paying the new price of 90 cents for three days, restored it to 75 cents in conformity with the Magnolia's price. The same thing happened to the Fox field, Carter county, but Sinclair restored this to the gravity basis Dec. 1.

On Dec. 11, Magnolia posted new prices for Oklahoma low grade oils where this company has pipe lines. Four grades differ from the Prairie schedule, as follows:

Under 28	.65	31-32.9	1.10
28-30.9	.75	33-34.9	1.25

NORTH LOUISIANA FIELDS

Caddo, Homer, Haynesville, El Dorado

Below 30	$ .75	35 to and including 36.9	$1.40
30 to and including 32.9	1.10	37 to and including 38.9	1.60
33 to and including 34.9	1.25	39 degrees and above	1.80

Other prices in the district are:

Bull Bayou		De Soto	$1.60
32 to and including 34.9	$1.25	Crichton	1.25
35 to and including 37.9	1.30	Bellevue	.75
38 degrees and above	1.40	Smackover, 26 and above	.75
		Smackover Below 26	.30

GULF COASTAL FIELDS

Spindletop	$1.25	Jan. 1	$1.25	Dec. 30	$1.25	Jan. 1	$2.50	June 13	$ .80
Goose Creek	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Sour Lake	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Humble	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Batson	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Hull "A"	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Hull "B"	.80	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
West Columbia	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Edgerly	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Vinton	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Jennings	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Dayton	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Saratoga	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 1	2.50	June 13	.80
Somerset (Texas)	1.25	Jan. 1	1.25	Dec. 30	1.25	Jan. 26	2.00	May 28	1.25

WYOMING FIELDS

Elk Basin	$1.60	Jan. 1	$1.90	Aug. 4	$1.20	Jan. 1	$3.10	June 27	$1.00
Grass Creek	1.60	Jan. 1	1.90	Aug. 4	1.20	Jan. 1	3.10	June 27	1.00
Big Muddy	1.15	Jan. 1	1.40	Aug. 4	.70	Jan. 1	2.75	June 27	.50
Salt Creek	1.15	Jan. 1	1.40	Aug. 4	.70	Jan. 1	2.75	June 27	.50
Lance Creek	1.60	Jan. 1	1.90	Aug. 4	1.20	Jan. 1	3.05	June 27	.95
Rock Creek	1.25	Jan. 1	1.50	Aug. 4	.80	Jan. 1	2.85	June 27	.60
Osage	1.60	Jan. 1	1.90	Aug. 4	1.20	Jan. 1	3.05	June 27	.95
Cat Creek, Mont	1 60	Jan. 1	1.90	Aug. 4	1.20	Jan. 1	3.19	June 27	1.00

CALIFORNIA

14-19.9	$.60	25-25.9	.85	30-30.9	$1.11
20-20.9	.62	26-26.9	.90	31-31.9	1.17
21-21.9	.65	27-27.9	.95	32-32.9	1.24
22-22.9	.70	28-28.9	1.00	33-33.9	1.31
23-23.9	$ .75	29-29.9	1.05	34-34.9	1 38
24-24.9	.80			35 and above	1.45

"Lum" Says:

"A lot of superintendents think too much of a white collar to learn what goes on in their own refinery."

Columbus E. Sanders, Superintendent West Tulsa refinery, was one of the men who built the first refinery in Oklahoma.

The loyalty and efficiency of his refinery organization insure uniform superiority of of Coleman Nelson Straight Run products.

COLEMAN-NELSON CORPORATION

Refiners

Tulsa, Okla.
LD-89

"Straight Run —Absolutely"

Export Business Remains Limited; Market Unaffected By Ruhr Invasion

By Special Correspondent
NEW YORK, Jan. 15.

SEVERAL fair-sized export sales were reported last week, but the aggregate volume of new business booked, was not large. The trade is keenly interested in the Franco-German situation, but the movement of troops into the Ruhr valley has not as yet had any influence upon the demand for oil from either Germany or France. The former is still purchasing moderate quantities of lubricating oil, kerosene and gas oil, while demand from France is largely confined to high grade lubricants and gasoline.

Two cargo sales of gasoline were reported. One called for 42,000 barrels of new Navy for nearby shipment to Europe, probably to the United Kingdom, while the other was for 49,000 barrels of 64 gravity gasoline probably to France. The White Eagle Oil & Refining Co. recently received an export order for a cargo of 2,000,000 gallons of light gravity gasoline for the United Kingdom, and this gasoline is now being accumulated at New Orleans.

Export prices were firmer at the close of the week and there is less talk of price cutting. New Navy gasoline which was recently available at 14½ cents for export is now quoted at 15½ cents. Refiners are optimistic and as considerable gasoline is going abroad against old contracts, not a great deal has accumulated along the Atlantic seaboard of late. Cased gasoline is moving more freely. One large export house received an order for 50,000 cases of kerosene to be shipped this month to the Far East, while 50,000 additional cases will be shipped next month. The call from the Orient has been chiefly for prime white kerosene.

Announcement was made by the United States Shipping Board Jan. 11 that the contract with the General Petroleum Corp. had been extended in all its terms and conditions for six months from Jan. 16 to July 16. According to estimates made public that day, the shipping board will require 100,000 barrels of oil for the six months at a price of $1.91 a barrel, terminal, and $2.11 a barrel in stream.

Italian buyers have been manifesting a keener interest in white crude scale waxes while match waxes are enjoying a better demand from both Japan and Scandinavia. Prices for waxes in general were fairly steady throughout the week. Italian buyers were also inquiring more actively for barreled lubricating oil but were not inclined to purchase beyond present requirements, most orders reported being confined to a few hundred barrels.

Belgium buyers are showing more interest in the American market but are still reluctant to purchase except as needed. South American consumers are again inquiring for cased gasoline and kerosene but no business to speak of has as yet developed in this direction. Buyer's ideas are still somewhat below those entertained by the refiners, although fair concessions have been offered in some cases. There is a little oil going to the West Coast of Africa.

British Importations

During the week ended Dec. 23, there were imported into the United Kingdom 17,001,950 gallons of petroleum. At London the British Petroleum Co. received 917,700 gallons of kerosene in bulk from Constanza; the Shell Marketing Co. received 2,242,130 gallons of gasoline in bulk from Singapore. All of the other large arrivals at London were to the Anglo-American Oil Co., Ltd., including 5,263,830 gallons of gasoline in bulk and 63,390 gallons of gas oil from Baton Rouge. At Liverpool, the British Petroleum Co. received 1,020,190 gallons of kerosene in bulk from New Orleans. At Barrow, the Anglo-Mexican Petroleum Co. received 1,348,480 gallons of naptha in bulk from Tampico while the Anglo-American Oil Co. received 564,570 gallons of kerosene and 1,280,420 gallons of gasoline in bulk from Baton Rouge. At Bristol the Anglo-American Oil Co. received 597,100 gallons of gas oil in bulk from Port Arthur. At Hull, the Anglo-Mexican Petroleum Co. received 765,000 gallons of gas oil in bulk from Port Arthur. The only arrival of consequence at Swansea was 2,663,230 gallons of crude oil from Abadan to the British Tanker Co., Ltd.

Gasoline and Kerosene

The gasoline market showed a slightly firmer tone during the week just elapsed and underlying conditions in general were better than the week previous. Small refiners are more confident of the future.

Kerosene is holding steady at unchanged prices. There is still a disposition in some directions to make concessions on firm business but most of the larger refiners are unwilling to lower their ideas. Prime white kerosene is moving more freely.

Bunker and Gas Oils

Bunker oil is still held at $1.50 a barrel at the refinery and not a great deal of new business has come to the surface of late. However, the export inquiry for bunker oil is much improved. The lighter fuel oils are steady and unchanged. No cargo sales of gas oil were reported, and locally 36-40 gas oil is still nominally quoted at 5¼ cents with a possibility of doing 5 cents at the refinery.

Lubricants and Waxes

Cylinder stocks are held by firm hands, and Pennsylvania 600 steam refined is held at 19 to 19½ cents a gallon, in barrels New York. No business to speak of was reported at this price. Western 600 S.R. can be had at around 15½ cents in barrels. The pale oils are coming in for a better demand.

Spindle 200 at 100 F. is held at 22¾ cents.

The waxes are well maintained, and no cuts have been recorded. White crude scale, 122-124 A. M. P. is held at 2¾ cents while match 105-108 A.M.P. is still quoted at 4 cents. Fully refined 118-122 is held at 3 cents. There have been no changes in either the petrolatums or medicinal oils and demand is light.

Mexican Products

The following prices are quoted by eastern seaboard Independent refineries on products which are manufactured almost entirely from Mexican crude transported from Tampico to the refinery by tanker.

	Jan. 15
•Gasoline (New Navy) gal.	.16
†Bunker oil (F.A.S. New York) bbl.	1.50
Gas Oil (36-40 refinery) gal.	.05¼
‡Plus, 45-150 W.W. Bulk Del., N.Y. nom	.09

•Delivered
‡Nominal
†Includes .06½ lighterage charge.

Export Markets

Furnished to N. Y. Produce Exchange by big exporting oil companies.

Illuminating Oils

	Jan. 15	Jan. 8
Bulk, gal., Bayonne	7.00	7.00
Barrels, gal., Bayonne, cargo	13.25	13.25
Cases, gal., Bayonne	16.50	16.50

Prices for water white oil (150 test) are 1 cent higher than those for standard white.

Gasoline-Naptha
(Cents per Gallon)

U. S. Navy, bulk	15.50	15.50
U. S. Navy, cases	28.75	28.75
Export grade, bulk	18.00	18.00
63-66 deg. bulk	21.00	21.00
66-68 deg. bulk	22.00	22.00

Tide Water Oil Company
(f. o. b. Bayonne)

59-61 deg. bulk	15.50	15.50
59-61 deg. cases	28.75	28.75
Export grade, Navy Specifications bulk	15.50	15.50
63-65 deg. bulk	21.00	21.00
68-72 deg. bulk	22.00	22.00

Standard white 110	7.00	13.25	16.50
Water white 150	8.00	14.25	17.50

The Texas Company

Gasoline, cases		28.75	28.75
Kerosene	Bulk	Barrels	Cases
Standard White	7.00	13.25	16.50
Prime White	7.50	13.75	17.00
Water White	8.00	14.25	17.50

Export Business Is Quiet In New Orleans District

NEW ORLEANS, Jan. 13.—Gasoline has steadily advanced in this district the past five weeks. Little stocks are carried by the refiners that run Mexican crude became that oil has been scarce, import records showing a vast falling off of supply. Therefore, companies refining Mexican oils are selling their output practically as fast as it is being run.

Refiners here are not making marginal contracts. Jobbers are buying on the spot market, excepting a few whose marginal contracts made last year are still in force. These contracts are few and far between. None of the New Orleans refiners are making marginal contracts although the Chalmette Oil Corp. which is allied with the Louisiana Oil Refining Corp. of Shreveport is said to be willing to make a sliding scale contract based on a minimum guarantee of 4 cents below the filling station market and a maximum of 6 cents.

Prices quoted by New Orleans refiners are as follows: naptha, 50-52 450-460 e. p. 9 to 9½ cents; domestic gasoline (tax freight and inspection paid) 14 to 14⅛ cents; export gasoline, 12 to 12½ cents; gas oil, 3½ to 3¾ cents; Panuco crude, $1.15 to $1.20; 14-16 gravity fuel, $1.20 to $1.25; 150 water white kerosene 6 to 6¼; 150 prime white, export, 5 to 5½.

Prices quoted by the Liberty Oil Co. for export: 150 water white kerosene, cases, 2/5 $1.60; 150 w. w. kerosene cases, 10/1,

$3.20; 150 w. w. wood barrels, $0.14½; 150 w. w. iron barrels, $0.12; 58-60 gravity gasoline, cases, 2/5, $2.35; 58-60 gravity gasoline, iron barrels, 16 cents a gallon.

Shipping has been light so far this month, only three cargoes having been cleared, with four cargoes of Mexican crude entered. However, the Union Petroleum Co., Mexican Petroleum Corp., New Orleans Refining Co. and Asiatic Petroleum Co. have probably 15 tankers to load and clear before the month is over, it is reported. Movements include:

Imports

60,000 barrels crude from Tampico to New Orleans Refining Co.
60,000 barrels crude from Tampico to Huasteca Petroleum Corp.
15,000 barrels crude from Tampico to Huasteca Petroleum Corp.
80,000 barrels crude from Tampico to East Coast Oil Co.

Exports

4081 tons gasoline and 3247 tons kerosene to Calais and Rouen, France.
55,002 barrels Mexican fuel oil to Christobal, Canal Zone.

N. Texas Trend Continues Up After Crude Advance

(Complete Refinery Prices, page 91)

DALLAS, Jan. 13.—The north Texas refinery market has remained firm throughout the week. Navy gasoline maintained its position at 11¼ cents a gallon and upwards, until the increase of 10 cents a barrel on crude this morning.

New Navy appears to be relatively scarce and no tendency to make concessions to obtain additional business has been observed. Many of the important plants in this area are making only a small cut of Navy gasoline. Runs have been limited largely to demands of steady customers or is made to order when time is granted by prospective purchasers. That condition has been brought about by the fairly steady demand for high gravity gasoline from exporters who made contracts in the fall for delivery over a large part of the winter.

But production of the lighter cuts of gasoline has been somewhat in excess of current demand and prices on 64-66 are not so strong as in adjacent refining centers which are maintaining prices on Navy at approximately the same level.

Naptha prices have been advanced more than 1 cent a gallon at nearly all plants in north Texas this week. Current quotations are at from 10 to 10¾ cents a gallon, depending on the gravity and end point of the product offered.

Absorption grades of natural gasoline are likewise higher due to the activities of one large buyer. There are a few scattered cars of compression grades which have been bought at around 10¾ cents a gallon but the majority of the commodity is bringing 11 cents.

As a result of the higher naptha and natural gasoline prices blenders have been forced to increase their quotations on motor natural gasoline in most instances.

Refiners who are finding it necessary to go into the crude market for additional raw material for their stills, are finding premiums somewhat stronger. Producers are inclined to ask more now than immediately after the rearrangement of the posted market on a gravity basis. The average premium on new purchases is said to be from 20 cents upwards.

Gas oil is somewhat scarce and buyers are finding that they must bid from ⅛ to ¼ cent more now than was necessary a week or so ago.

Refiners' and Jobbers' Supplies

Following are the average market prices for the week on the principal materials used by refiners and jobbers, f. o. b. shipping point as effective this date.

Benzol

	Jan. 15	Jan. 8
Pure Water White.....gal.	$.30-.39	$.39-.43
90%.....gal.	.27-.35	.37-.40
Motor.....gal.	.24	Nominal

Refiners' Supplies

Soda Ash light.....cwt.	$1.75-2.10	$1.75-2.10
Silicate of Soda 60 deg.....cwt.	2.00-2.20	2.00-2.25
Sal. Soda.....cwt.	-1.10	-1.10
Caustic Soda 76%....cwt.	-3.60	3.50-3.60
Chloride of Lime.....cwt.	2.25-2.50	2.00-2.25
Sulphuric Acid 60 deg tank cars f. o. b. shipping point.....per ton	9.00-9.50	9.00-10.50

Jobbers' Supplies (Open Market)

Vegetable Oils—

Linseed, carloads.....gal.	$.90	$ -.90
Less carload.....gal.	-.93	-.93
5 Bbls. or less.....gal.	-.96	-.96
Boiled, tank.....gal.	-.88	-.88
Boiled, carloads.....gal.	-.92	-.92
Soya Beans Spot, bbls.....gal.	*-.11¼	-.11

*Nominal

Animal Oils—

English Degras.....lb.	$.04¾	$ -.04¾
Domestic Degras, bbls. carloads.....lb.	-.04¼	-.04¼
Horse.....lb.	-.07¾	-.08

Oleic Acid—

Dist.....lb.	-.10½	-.10½
Saponified.....lb.	-.10½	-.10½

Lard Oils—

Prime Winter Strained	1 to 1½	ffa.	.40/45c.t.lb.	$.13⅞ $.14
Extra Winter Strained	2 to 4½	ffa.	.40/45c.t.lb.	.13⅛ .13
Extra.....	4 to 5	ffa.	.40/45c.t.lb.	.12¾ .12¼
Extra No. 1.....	7 to 10	ffa.	.40/50c.t.lb.	.12½ .12
No. 1.....	15 to 18	ffa.	.40/45c.t.lb.	.12 .11
Special No. 1.....	18 to 20	ffa.	.40/45c.t.lb.	.12¼ .11½
No. 2.....	22 to 23	ffa.	.40/45c.t.lb.	.11⅝ .10¾
Prime Edible Tallow under 1⅛ ffa. 40/45c.t.N.Y.....lb.				.10 .10
Tallow acidless.....gal.				.11⅜ .11⅛
Lard Stearine.....lb.				.13¼ .13½
Oleo Stearine.....lb.				.10¼ .10

Neatsfoot Oil—

20 degree F. cold test under 1% ffa. lb.	1.25	1.25
30 degree F. cold test under 1% ffa. lb.	1.10	1.05
40 degree F. cold 12-15⅛—1% ffa. lb.	.90	.90

Fish Oils—

Menhaden Oil Light pressed.....gal.	$.60	$.60
Brown.....gal.	.58	.58
Yellow bleached.....gal.	.70	.62
Herring, tank cars coast.....	.42	Nominal
Whale, extra winter bleached lb.	.78	.77
Seal.....		Nominal

Naval Stores—

Turpentine, N. Y....gal.	1.52-1.53	1.53
Turpentine†.....gal.	1.42	1.46
Rosin B. N. Y.....bbl.	6.15	6.15
Rosin F.N.Y.....bbl.	6.25	6.25
Rosin B.†.....bbl.	4.87½	4.95
Rosin F.†.....bbl.	4.87½	4.95
Rosin Oil 1st. run....gal.	.44	.43
Rosin Oil 2nd. run...gal.	.48	.47

Pine Tar—

Kiln Burnt.....bbl.	12.50	12.50
Retort.....bbl.	11.00	11.00

†Savannah, Ga., market

Turpentine Easier; Benzol Stocks Large; Market Good

By Special Correspondent

NEW YORK, Jan. 15.—Spirits of turpentine was easier at the beginning of the week but was firmer at the closing, and is now held at $1.52 per gallon in wooden barrels ex-yard. Linseed oil was soft, and still available at 87 cents for the raw oil in carlots. The chemicals have been rather quiet but business is steady and prices in most directions are fairly well maintained. Practically all of the crude menhaden oil, available in the north has been purchased during the past week, and there are only, approximately 400 barrels left.

Chemicals

Supplies of benzol have been larger of late and the condition of the market is much better than it has been in many months. Spot benzol is still scarce but producers are offering pure benzol at 30 to 39 cents for prompt shipment and 90 per cent at 27 to 34 cents. Sales are active manner. Soda ash was rather quiet, but steady and carlot sales have been made on spot at $1.10 per hundred pounds for barrels and $1.30 for kegs. Small quantities have sold at as high as $2.10 in single bags. Export prices for caustic soda have not shown any changes to speak of. Producers are still asking 3.50 to 3.60 cents per pound f.a.s. New York for the standard brands. The spot market is quoted at around 3.75 cents per pound. Shipments are held at 2.50 cents basis 50 per cent, works, carlot quantities. Sal soda is well sustained at 1.10 cents per pound, barrels, and 1.30 cents in kegs. Sulphuric acid showed little or no change. Most of the buying was of a light, routine character and prices are still soft, due to keep competition.

Oil and Naval Stores

Raw linseed oil is rather easy and unchanged at 87 to 90 cents per gallon in carlots. There was very little activity in the spot market throughout the week, and most of the activity was confined to the filling of standing contracts. Buyers are in anticipation of further downward price revisions and are taking little or nothing. January oil is available at 86 cents; February at 86 possibly 85 on a bid, March 85, April at 84 cents and May-August at 82 cents. The other vegetable oils were very quiet but fairly firm. Soya bean oil is firmer, there being a good demand and small supply.

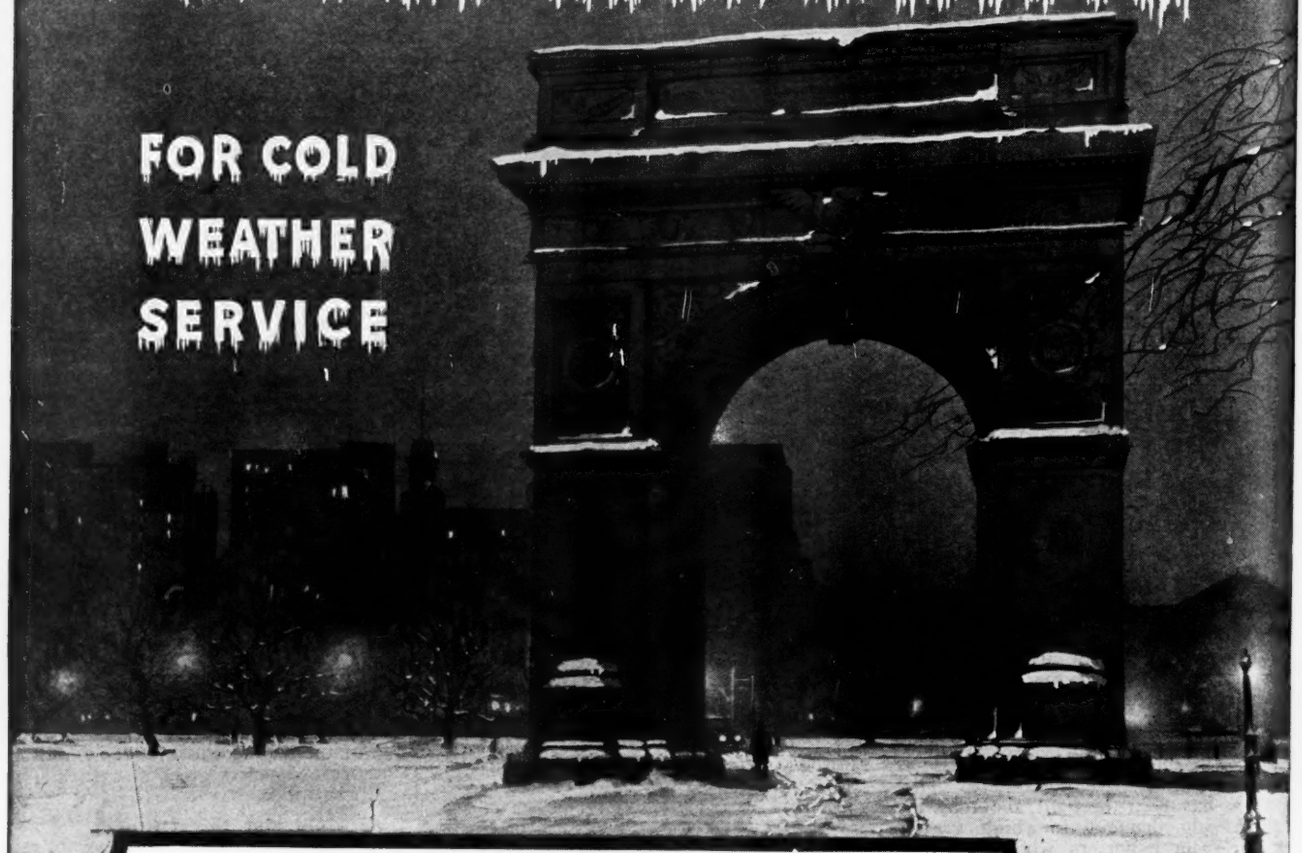
Animal oils have stiffened considerably of late, due to smaller stocks and a better demand. Crude menhaden oil was decidedly stronger as the result of a sale of 2000 barrels in the Chesapeake Bay district at 50 cents in tanks at the plant.

Naval stores were in fairly good request. Spirits of turpentine is held at $1.52 per gallon but was down to $1.51 during the earlier part of the week. Some holders are still asking as high as $1.55 per gallon. Rosins were in good request the greater part of the week. No violent price fluctuations were recorded.

JEFFERSON CITY, MO., Jan. 13.—A definite movement to push the pasage of a bill designed to levy a tax of one cent for road purposes on all gasoline sold in Missouri has developed in the state legislature. The measure has been drawn ready for submission.

TIDAL GASOLINE

FOR COLD WEATHER SERVICE



BULLETIN NO. 101

That gasoline should have a decidedly greater volatility in winter than in summer was a point emphasized in the "good gasoline" discussion at the recent annual convention of the American Petroleum Institute. A large percentage of volatile gas in the combustion chamber of an automobile on a cold day, it was declared, facilitates starting and warming up the motor and thus greatly improves its performance under the handicap of lack of heat.

Tidal gasoline is made sufficiently volatile in the winter to cause the motor to respond quickly and to swing without delay into smooth action. Tidal gasoline is also uniform in quality. Every day it serves a host of users well.

W. Rudolph, M.E.

Wire or Write

TIDAL REFINING COMPANY
Tidal Building—Tulsa, Oklahoma

Subsidiary to The Tide Water Oil Company, New York, Makers of Veedol Quality Lubricants and Tydol Economy Gasoline.

TIDE WATER

#5 Bright Stock

Pure Pennsylvania

Fire Test 615

Flash	530
Cold test	40/45
Viscosity	150@212
Color	400-½"cell lovibond

WHITEHALL 6000

TIDE WATER OIL CO.

11 BROADWAY NEW YORK

OIL FINANCE

Standard Oil Shares Now Number Nearly 75,000,000

NEW YORK, Jan. 13.—Following the recent stock dividends by Standard Oil companies and the readjustment of the capital issues to shares of $25 par value by many companies, there was outstanding at the beginning of this year close to 75,000,000 shares which represents an increase of more than 40,000,000 over the number outstanding Jan. 1, 1922.

The following table gives the common and preferred shares, outstanding shares and the increase in number because of stock dividends:

Company	Common shares outstanding	Increase in no. of shares outstanding
Anglo-American Oil	3,000,000	.....
Atlantic Refining	500,000	450,000
Borne-Scrymser	10,000	8,000
Buckeye Pipe Line	200,000	.....
Chesebrough Mfg.	15,000	.....
Continental Oil	400,000	300,000
Crescent Pipe Line	60,000	.....
Cumberland Pipe Line	30,000	15,000
Eureka Pipe Line	50,000	.....
Galena-Signal	160,000	.....
Humble O. & R.	1,750,000	1,500,000
Illinois Pipe Line	200,000	.....
Imperial Oil, Ltd.	1,568,910	.....
Indiana Pipe Line	100,000	.....
Intern Petroleum, Ltd.	7,118,138	.....
Magnolia	1,800,000	600,000
National Transit	509,000	.....
New York Transit	50,000	.....
Northern Pipe Line	40,000	.....
Ohio Oil	2,400,000	1,800,000
Prairie Oil & Gas	540,000	360,000
Prairie Pipe Line	810,000	540,000
Solar Refining	40,000	20,000
Southern Pipe Line	100,000	.....
South Penn Oil	200,000	.....
Southwest Pa. Lines	35,000	.....
St. Oil of California	8,179,274	4,089,637
St. Oil of Indiana	8,588,836	4,294,418
St. Oil of Kansas	320,000	300,000
St. Oil of Kentucky	700,000	280,000
St. Oil of Nebraska	30,000	.....
St. Oil of New Jersey	19,896,485	15,816,188
St. Oil of New York	9,000,000	8,250,000
St. Oil of Ohio	140,000	70,000
Swan & Finch	18,062	.....
Union Tank Car	180,000	60,000
Vacuum Oil	2,400,000	2,250,000
Washington Oil	10,000	.....
Total	**71,148,705**	**41,013,243**

	Preferred shares outstanding
Atlantic Refining	200,000
Chesebrough Mfg.	10,000
Galena-Signal, old	20,000
Galena-Signal, new	40,000
St. Oil of New Jersey	1,983,498
St. Oil of Ohio	70,000
Union Tank Car	120,000
Total	**2,443,498**
Grand Total	**73,592,203**

Oil Finance

	Amount	Payable	Stock of Record
Ohio Fuel Oil q.	50c	Jan. 20	Jan. 15
Prod. & Ref. q.	$1	Mar. 15	Mar. 1
do pfd. q.	1¾%	Feb. 5	Jan. 23
Shell Trans.	92½c	Jan. 24	Jan. 16
Sinclair Cons. q.	50c	Feb. 15	Jan. 20
do pfd. q.	$2	Feb. 28	Feb. 15
Union Tank Car pfd. q.	1¾%	Mar. 1	Feb. 5
Atlantic Ref. pfd. q.	1¾%	Feb. 1	Jan 15
S. O. Ohio pdf. q.	1¾%	Mar. 1	Jan. 26

Financial Notes

Cosden & Co.—36,170 additional shares of common stock admitted to the New York Stock Exchange.

Standard Oil Co. of Louisiana.—Capital stock, which is owned by the Standard of New Jersey, has been increased from $30,000,000 to $75,000,000.

Continental Oil Co.—The producing subsidiary, the Inland Oil & Refining Co., will change its name to the Continental Oil Producing Co. and increase its capital from $2,000,000 to $6,000,000.

Maracaibo Oil Exploration Corp.—Directors have authorized an issue of $800,000 two-year 7 per cent debentures convertible into stock as the rate of $1,000 bonds for 100 shares after July 1, 1923. After ratification by stockholders the bonds will be issued to them at par, it was announced.

NEW YORK, Jan. 12.—Cosden & Co. has called for redemption on April 1 at 105 the remaining $35,500 of the convertible 6 per cent bonds of Cosden & Co. of Oklahoma. All the other bonds of Cosden & Co. and subsidiaries were retired Jan. 1.

Rumors Of Oil Company Mergers Fill Wall Street

NEW YORK, Jan. 15.—Rumors of mergers of oil companies continue to float about Wall street, some bringing admissions from the involved companies that negotiations are being conducted while denials have been issued by other companies.

One report again brought up the Gulf Oil Corp. and the Standard Oil Co. of Indiana. It was said that only the report of the LaFollette committee in the senate was holding up the announcement of this merger. The revamping of the Gulf stock and the declaration of the 100 per cent stock dividend by the Standard of Indiana has brought the market value of their shares more on a level, Gulf closing last week at 59½ and Indiana at 62⅛.

Another merger which is said to be near closing is of the Transcontinental Oil Co. and Arkansas Natural Gas Co. with the Union Oil Co. of California. Other companies, including the Pure Oil Co., have been mentioned in connection with this deal but so far they have not been linked up with it. Pure Oil Co. officials have issued a denial that they were contemplating a merger with any other company.

The Kansas & Gulf Co. has been linked to another deal with several small companies, the new company to be called the Peer Oil Corp. A merger of the White Oil Corp., Kirby Petroleum Co. and several small companies is expected to be announced soon.

Texas Seeks Export Rate

DALLAS, Jan. 13.—Refiners in the north Texas area have filed an emergency request with railroads of the southwestern group for a rate of 16½ cents per cwt. on refined products to gulf ports. The rate is asked to apply on shipments to Houston, Port Houston, Texas City and Galveston, Texas, as well as to New Orleans. A rate on shipments destined for coastwise movement from gulf ports as well as on export is asked. Refiners assert that the rate is necessary if they are to continue in competition with similarly situated producing areas.

Might Have Used Snowshoes

BARTLESVILLE, Jan. 13.—D. B. Dow, petroleum engineer for the Bureau of Mines station here, has come to the conclusion that life is not all one gladsome song for the government employe, even though that may be the general impression.

To assist in testing the gasoline content of United States royalty gas in Wyoming he was recently called from Bartlesville, where the winter thus far has resembled Indian summer. With roads in the northwest impassable he found it impossible to carry on an ordinary testing appartus by automobile to the field. His problem was to devise an apparatus which he could carry on his back and then to struggle on foot to the wells through snow and extremely low temperature. He utilized the charcoal method of making the test desired by his former chief J. H. Hill.

Now that Dow is back where an overcoat is rather uncommon except in the late evening, he is gradually thawing out.

BARTLESVILLE, Jan. 13.—Experiments designed to reveal the best mthods of extracting lubricating oils from wax distillate are being conducted here by L. D. Wyatt and C. R. Bopp of the Bureau of Mines. Yields from a given amount of distillate are now being studied particularly. The Bartlesville station has recently been enlarged by the addition of a complete miniature wax and lubricating oil plant as an adjunct to the experimental refinery.

NEW YORK, Jan. 11.—J.R. Simpson, a vice president of the Sinclair Consolidated Oil Corp. in charge of foreign sales, is in Europe. His business has to do with the companies affiliated with Sinclair Consolidated, which are the Compagnie Industrielle des Petroles and Compagnie des Huiles Sinco in France, and the Union Petroleum Co. of Belgium. Col. Simpson is also head of the Sinclair Exploration Co. which is developing property in Angola, Portuguese Southwest Africa.

Transactions In Oil Shares On New York Stock Exchange

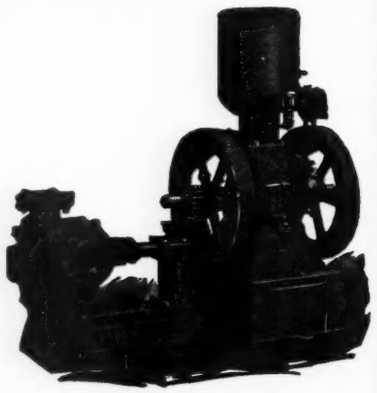
1921 High	1921 Low	1922 High	1922 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Jan. 12 Sales	First	High	Low	Last	Ch'ge
107¾	91	135½	99	$40,000,000	100	Associated Oil	1½Q	Oct. 25,22	14,300	125	143	124	128	+ 3
1185	820	1575	900	5,000,000	100	Atlantic Ref	5Q	Dec. 15,22	5300	132	160	131	147	+18
113½	103¾	119½	114	20,000,000	100	do pfd	1¾Q	Nov.1, 22	400	119¾	119⅞	119¾	118⅞	+ ⅝
27	21	56¼	19¾	13,000,000	25	Barnsdall Corp. A	.62½	Apr. 30, 21	3,200	33¾	33¾	31½	31½	− 2½
55	14¾	39	17	3,712,300	25	do B	.62½	Apr.30, 21	100	19	19	19	19	− 3
19¼	7¾	15⅜	6¾	150,000	N. P.	Caddo Central			5,400	7	8¾	7	8	+ ¾
50¾	25	71⅞	43½	14,877,000	100	California Pet	1¼	Oct. 1, 13	230,800	71⅞	83½	69⅝	81½	+ 9¼
88	68½	98½	88	10,489,500	100	do pfd	1¾Q	Jan. 2, 23	2,800	98⅛	98⅜	96¾	98	− ½
44⅞	22½	53¼	31⅝	1,097,175	N.P.	Cosden & Co	1.00Q	Nov. 1, 22	189,600	51⅜	56⅜	50⅝	56⅛	+ 4⅝
		102½	93½	6,998,000	100	do pfd	1¾Q	Dec .1,22	2,100	102	103½	102	103½	+ 2
59½	39⅞	80	45¾	252,835	N.P.	Gen. Amer. Tank	1½SA	Jan. 1, 23	900	66½	68	66	68	+ ½
		105½	96½	8,867,500	100	do pfd	1¾Q	Jan. 1, 23	200	101	101⅜	101	101⅜	− ⅛
78⅛	39½	73¾	37¼	19,828,300	100	Gen. Asphalt			51,300	47¾	48⅜	45⅛	46¾	− 1
117½	77	111	69	7,416,100	100	do pfd	1¼Q	Dec. 1, 22	2,100	80	80½	77¾	79	− 1
91⅜	25	78	40	3,236,600	100	Gilliland pfd	2	May 15,21						
86	40½	91¾	61¼	25,000,000	100	Houston			16,600	70	75¼	69¼	74	+ 2½
7⅛	2	21¼	12⅞	6,250,000	25	Indiahoma Ref	‡.15	July1,21	2,000	14½	15½	14¼	15½	+ ⅜
18¾	6½	11⅜	5¾	7,830,450	10	Indian Ref	.50	Dec.15,20	1,200	6¾	7½	6¼	7½	+ ⅜
80	80			2,296,400	100	do pfd	1¾	Dec.15,21						
26	5½	20¼	12⅛	999,980	N.P.	Invincible Oil			7,600	15½	15¾	14⅝	15	− ½
4¾	2	3	¼	25,709,510	10	Island Oil			3,400	⅜	⅜	¼	⅜	0
9	4½	7½	1½	14,717,460	10	Kansas & Gulf			11,800	2¾	3½	2¼	3	+ ½
307⅛	125⅛	463⅛	225⅛	927,515	N.P.	Marland Oil	1.00Q	Jan. 2,23	20,300	28¼	30	27¼	29¾	+ 1⅜
167¼	84½	322	106¾	45,942,800	100	Mexican Pet	3Q	Oct.10,22						
94	70	104	79¾	12,000,000	100	do pfd	2Q	Jan. 10,23						
		34½	14½	441,291	N.P.	Mexican Seaboard	.50Q	Nov.27,22	3,700	16⅝	17¾	16¼	16⅝	− ⅛
		32⅛	12	261,000	N.P.	do V. T. C.	.50Q	Nov.27,22	6,600	16	16½	15½	15¾	+ ⅛
16½	10	16	11	23,903,190	10	Middle States	.50Q	Jan. 1, 23	36,100	11¾	12¼	11½	12	+ ¼
4	1¾	4⅜	1¾	15,000,000	5	Okla. P. & R	2	Apr.1,21	3,600	2	2	1⅞	1⅞	0
50¼	27½	69⅜	42½	3,500,000	N.P.	Pacific Oil	1½SA	July20,22	45,500	47⅜	48¼	46¼	47	− ⅝
79⅜	38⅛	100⅞	48⅞	48,292,450	50	Pan. Amer. P. & T	1.50Q	Oct. 10,22	97,900	86¼	90⅜	84	89½	+ 2½
71¾	34⅜	95¾	44	56,156,450	50	do B	1.50Q	Oct.10,22	108,200	80¾	83⅜	78½	82½	+ ⅝
13½	6	12	3	198,770	N.P.	Panhandle P. & R			500	4¾	4¾	4¾	4¾	− ¼
78½	68	75	61	3,082,700	100	do pfd	2Q	Jan.2,23	100	68	68	68	68	+ 5½
34¼	16	59¼	28¼	696,910	N.P.	Phillips Pet	.50Q	Jan.2, 23	67,500	48½	52½	47½	51⅞	+ 3⅜
14⅜	5¼	12¼	3⅞	29,622,925	25	Pierce Oil			5,400	4¼	4⅝	4¼	4½	− ⅜
78	30½	71	35	14,634,000	100	do pfd	2Q	Feb.1,22	1,400	42¼	43¼	41	43	+ 1
34½	20¾	51	24⅛	18,162,400	50	Prod. & Ref			94,300	50½	50½	47⅜	49	− ⅝
40	35	49	36	2,961,950	50	do pfd	87½Q	Nov.6,22	500	46⅞	47	46	46	− 1⅜
40¾	21¾	38⅝	26½	64,487,525	25	Pure Oil	.50Q	Dec .1,22	6,700	29⅛	29⅛	27¾	28½	− ⅞
		102¾	94	10,000,000	100	do 8% pfd	2Q	Jan.2,23	300	99⅞	99⅞	99¾	99¾	− ⅛
69⅞	40½	67	47¼	(sh)833,651	13.40	Roy. Dutch, N. Y.	10Int.	Jan.1,23	17,400	51¼	52⅝	50	52⅝	+ ⅞
49	30⅞	48½	34½	(sh)233,510	1	Shell Transport	1.55¼	July25,22	3,900	37¾	38½	37⅝	38½	+ ½
		13¼	12⅛	8,000,000	N.P.	Shell Union	.25Q	Dec. 30,22	11,500	12¾	13	12⅜	13	+ ¼
		96½	90	20,000,000	100	do pfd	1½Q	Nov.15,22	500	92	93	92	93	+ 1
28½	16¼	38¾	18¾	4,475,376	N.P.	Sinclair Cons	.50Q	Nov..15,22	43,200	34⅛	34⅝	32⅛	34⅛	+ ⅛
		102	97⅛	19,999,500	100	do pfd	2Q	Nov.30,22	1,100	98½	99	98¼	98¼	− ⅛
		11⅞	8⅜	19,989,450	10	Skelly Oil			62,000	10¼	11¼	10	11⅛	+ 1
98½	67¾	135	91¾	102,057,975	25	S. O. California	1.00Q	Dec. 15,22	52,000	60⅜	62¼	58	61¾	+ 1⅜
192¼	124½	250½	169	98,338,306	25	S. O. New Jersey	1.25Q	Dec. 15,22						
		40¼	38⅜	397,929,700	25	do new			89,800	41⅞	43⅜	40½	42¾	+ 1
114½	104¼	120	113⅜	198,349,800	100	do pfd	1¾Q	Dec. 15,22	3,500	117⅜	117⅜	116⅝	117	− ½
13¼	3¼	10¼	4	451,708	N.P.	Superior Oil	.50	Dec.20,20	1,800	5½	5⅜	5⅛	5⅛	− ⅜
48	29	52½	42	164,450,000	25	The Texas Co	.75Q	Dec.30,22	28,900	48¼	49	47½	48	− ¼
38⅞	19¼	32¾	18	8,362,250	10	Tex. Pac. C. & O	.25Q	Jan. 2,23	5,600	21¼	21⅜	20⅝	21¼	− ¼
175	119	154	107¾	49,672,100	100	Tide Water	2Q	Dec.30,21	3,300	120½	133	120	132⅝	+11⅞
13	6	20⅛	7½	2,000,000	N.P.	Transcont. Oil			41,400	13⅞	13⅞	10⅞	11⅞	− 2⅛
25½	15¼	25	13¾	1,389,417	N.P.	Union Oil			100	¼	¼	¼	¼	+ ⅛
107	87½	134¾	96	12,000,000	100	Union Tank Car	1¼Q	Dec. 1,22	400	84¾	84¾	83	83	− 2
107	92	113	102	12,000,000	100	do pfd	1¾Q	Dec. 1,22	300	110	110½	110	110½	+ ½
		34	25	400,000	N P.	White Eagle	.50Q	Oct.10,22	5,800	26	26	25	25½	− ¾
17¼	7	11¾	2⅛	959,046	N.P.	White Oil			2,200	3½	3⅝	3½	3½	− ⅛

*New High †New Low ‡In Scrip xEx—dividend Total Sales 1,424,500

Standard Oil Stocks Traded In New York Curb Market

1921 High	1921 Low	1922 High	1922 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Jan. 12 Sales	First	High	Low	Last	Ch'ge
22	14	25	16¾	3,000,000	1	Anglo Amer. Oil	45cS.A.	July 15, 22	2,600	19¼	19¼	18½	19	− ¼
24½	6¾	12⅜	5½	(sh) 500,000	N.P	Atlantic-Lobos			2,400	7⅜	7¾	7	7⅛	− ⅝
885	325	610	335	$ 200,000	100	Borne-Scrymser	20 S.A.	Oct. 15, 22						
88	70	109½	83	10,000,000	50	Buckeye Pipe Line	4Q	Dec. 15, 22	765	92½	94	92	93½	+ 1½
200	100	225	177	1,500,000	100	Chesebrough Mfg	3½Q	Dec. 28, 22	20	207	207	207	207	
108	95	113	104	1,000,000	100	do pfd	1¾Q	Dec. 28, 22						
128	100	152½	125	10,000,000	100	Continental Oil	2Q	Dec. 15, 22	260	158	160	158	158	− ½
55	24	49	28	3,000,000	50	Crescent Pipe	1½Q	Dec. 15, 22	230	43½	45	43	43	− 2
150	115	185	115	1,500,000	100	Cumberland Pipe	12A	Dec. 15, 22	30	168	168	x89	89	
105	70	103½	79½	5,000,000	100	Eureka Pipe Line	2Q	Nov. 1, 22	655	105	108½	105	105¼	− ¼
53	29	62	40	16,000,000	100	Galena-Signal Oil	1Q	Dec. 30, 22	425	59¾	60	59	59¾	0
106	86	105	100	4,000,000	100	do new pfd	2Q	Dec. 30, 22	100	105	105	105	105	
260	150	261	212½	25,000,000	100	Humble O. & R	2Q	Jan. 1, 23						
195	140	198	154	20,000,000	100	Illinois Pipe Line	8 S.A.	Dec. 30, 22	90	168	168	166	166½	− 1½
115	76	130¾	97½	39,222,750	25	Imperial Oil, Ltd	3Q	Dec 15, 22	1,045	113	115	111½	112½	− ½
109	68	111	84	5,000,000	50	Indiana Pipe Line	4Q	Nov.15, 22	335	97	97¾	96½	97¾	+ ¾
17¾	9⅛	27½	14	sh7,188,138	N.P	International	25c	Nov. 20, 22	15,220	21⅞	21⅞	21⅛	21½	+ ⅜
165	110	259	150	120,000,000	100	Magnolia Pet	1½Q	Oct. 2. 22						
		164	156		100	do new			1,515		165	160	164	+ 5
30½	22	31⅛	23	6,362,500	12½	National Transit	4Q	Dec. 15, 22	1,100	27½	27½	26¾	27	− ½
167	115	214	117	5,000,000	100	New York Transit	4Q	Oct. 14, 22	105	135	135	132	133	0
99⅛	83	127	90	4,000,000	100	Northern Pipe Line	8S.A.	Jan. 1, 23	20	108½	109	108½	109	+ 2¾
301	222	365	257	15,000,000	25	Ohio Oil	3Q	Dec. 30, 22						
		73½	71	60,000,000	25	do new			2,300	76½	77¾	76	77¼	+ 1¾
40	16	44¾	16	10,000,000	25	Penn-Mex Fuel			100	18	18	18	18	+ 1
598	385	750	520	18,000,000	100	Prairie O. & G	3Q	Oct. 31, 22	525	685	700	x230	232	
242	155	325	224	27,000,000	100	Prairie Pipe Line	3Q	Oct. 31, 22	1,055	330	335	x111	113	
425	330	405	370	2,000,000	100	Solar Refining	8S.A.	Dec. 20, 22						
121	70	110	77	10,000,000	100	Southern Pipe Line	2Q	Dec. 1, 22	775	100½	104½	100½	104	+ 4
266	150	249	150	20,000,000	100	South Penn Oil	1½Q	Sept. 30, 22	60	170	170	168	168	− 6
75	50	70½	50½	3,500,000	100	Southwest Pa. P. L.	1Q	Oct 2, 22	145	67	67	66½	67	0
93⅛	60¾	135	83¾	107,360,455	25	S. O. Indiana	4Q	Dec. 15, 22	123,900	62⅝	63⅛	60¼	62⅞	+ 1⅞
		59⅝	58⅜		25	do new								
635	520	690	560	2,000,000	100	S O. Kansas	3Q	Dec. 15, 22						
		46	41		25	do (new) w. i.			2,500	43	44	41½	43¾	− ¾
445	315	131	76½	10,000,000	25	S. O. Kentucky	5Q	Jan. 3, 23	17,500	133	133	x80	92¾	
191	130	217	170	3,000,000	100	S. O. Nebraska	8S.A	Dec. 30, 22	395	189	209	189	208	+22
393	296	675	341	75,000,000	100	S. O. New York	4Q	Dec. 15, 22						
		57	41⅛	225,000,000	25	do (new) w.i.			21,500	48½	49¼	47	48⅞	+ ½
420	329	585	261	7,000,000	100	S. O. Ohio	3Q	Jan. 1, 23	90	305	309	302	306	+ 1
112	103	119½	113½	7,000,000	100	do pfd	1¾Q	Dec. 1, 22						
55	25	37	30	1,806,200	100	Swan & Finch	2½S.A.	Nov. 1, 22	55	22	22	22	22	
345	252	710	299	15,000,000	100	Vacuum Oil	8S.A.	Nov. 29, 22						
		46	36¼		25	do (new) w.i.			37,900	45¼	47	44½	46⅞	+ 1¾
37	23	32	20	100,000	10	Washington Oil	20A.	Jan 31. 22	50	25	25	25	25	

Taber Pumps
For
Tank Stations



THIS single cylinder, figure 307 "S" type unit, is especially adapted for emptying tank cars. It has 2" connections, self compensating buckets and is of superior workmanship thruout.

An Ideal Pump for Emptying Tank Cars

Taber Pump Co.
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'NEW
20th Edition
STANDARD OIL BOOKLET

This Booklet contains description of properties, earnings, dividend rates, price ranges 1913-1922, and other important information relative to each of these companies.

Copy mailed free on request for S-22

CARL H. PFORZHEIMER & CO.
Dealers in Standard Oil Securities
25 Broad St. New York

New York Bonds

Week Ended Jan. 13

	High	Low	Last
Atlantic Ref. 5s	99½	99	99⅜
Barnsdall A 8s	102½	102½	102½
Empire Gas & Fuel 7½s	94½	93⅝	94¼
Humble 5½s	99	98½	99
Marland 8s	102⅞	102⅞	102⅞
do 8s war	112½	112½	112½
do 7½s war	103	102	103
Mexican Pet. 8s	108⅞	107½	108
Pan-American 8s	103	102	102½
Prod. & Ref. 8s	108½	107¾	108¼
do 8s war	125	123	125
Sinclair Cons. 7s	101½	100⅞	101⅛
Sinclair C. O. P. 5½s	98⅞	98½	98⅞
Sinclair P. L. 5s	89	88	88
S. O. California 7s	105⅞	105¼	105⅜
Tide Water 6½s	103¾	103	103¼
Union of Calif. 6s	102¾	101⅞	102
Union Tank Car 7s	104	103	104

Miscellaneous Stocks

Jan. 5 1921

	Par Value	Bid	Asked	High	Low
National. Refg. (a	25	52	52¾	45	26½
do pfd. (a)	100	126	....	118½	107
Paragon Refg. (a)	25	11½	12	25½	9½
do pfd. (a)	100	....	....	96	96
Indiahoma (b)	5	15	15½	7½	2
Marland Refg. (b)	5	....	....	30⅞	12⅛

(a) Cleveland (b) St. Louis

Unlisted Stocks

By Carl H. Pforzheimer & Co.

Gulf Oil Corp	925	59¼	59¾	392	280
Humble Oil & Refg	100	....	....	261	150
do new	25	34	35	....	....
Magnolia Petroleum	100	164	166	165	110

New York Curb Market

1921 High	1921 Low	1922 High	1922 Low	Par Value		Transactions Week Ended Jan. 12 Sales	First	High	Low	Last	Ch'ge
10¾	3½	9⅜	3¼	25c	Carib.Synd.Ctf	5,300	5	5	4¾	5	− ⅛
256	101	242	158	100	Cities Service	345	176	178	174	177	−1
71	35	72	51	100	do pfd	1,900	67½	68⅜	67	67¼	0
31½	11¼	25½	17	10	do bankers' ctf	1,200	17¾	18¼	17¾	18	0
2¼	1⅜	2¼	.65	5	Federal Oil	108,200	.....	.95	.72	.89	+.14
15	6	19½	8⅞	N.P.	Fensland Oil	14,900	16½	17½	16	16¾	+ ⅛
2⅛	1	1 1/16	.88	10	Glenrock Oil	14,400	1 1/16	1¼	1 1/16	1 1/16	+ ⅛
24	1	9⅝	2⅜	N.P.	Gilliland	3,700	3½	3⅞	3½	3¾	+ ⅜
.....	.....	810	810	100	Gulf Oil	.....	.....	.....	.....	.....	.....
.....	.....	71½	48½	25	do (new)	34,800	60	61½	57½	59¼	− ¼
18½	15¾	26½	2¼	N.P.	Kirby Petroleum	1,100	.....	4	3¼	3¼	+ ¼
.....	.....	49½	40	N.P.	Mammoth Oil	24,100	.....	55	49¾	59½	+3
32½	10½	27⅞	12¾	N.P.	MaracaiboOilExp.	9,300	13	13¼	11⅛	11¼	−1⅜
2½	.74	10	1	N.P.	Marland of Mex.	1,400	2¾	3⅞	2¾	3⅞	+1¼
15⅝	6¾	14⅞	6¼	10	Merritt Oil	4,700	9⅛	9⅜	8¾	9	− ⅛
13⅛	5½	19	9⅜	10	Mountain Prod	5,500	17⅝	17⅜	16⅞	17¼	− ⅛
10	5	13¼	5¾	5	Mutual Oil	54,800	12⅞	13⅛	12½	12⅞	− ⅛
.....	.....	88	40	10	NewEng.FuelOil	700	45	45	45	44	−2
.....	.....	37	11¾	25	New York Oil	.....	.....	.....	.....	.....	.....
3¾	1	8	1½	5	N. Amer. Oil	.....	.....	.....	.....	.....	.....
3	.64	3	.67	10	Omar O. & G	12,000	.....	1⅛	1	1 1/16	− 1/16
7	3	9¾	4⅞	10	Pennok Oil	6,200	.....	9⅞	9¾	9½	− ¼
.....	.....	14¾	10	10	Salt Creek Cons.	1,400	11½	11½	11⅛	11¾	− ⅛
15¾	9¼	22	12½	10	Salt Creek Prod	5,500	21½	21⅝	20½	21⅛	− ⅜
5⅛	2¾	5	2¾	5	Sapulpa Refining	9,600	2⅞	3⅛	2¾	3½	+ ¾
.....	.....	.....	.....	.....		.....	.....	.....	.....	.....	.....
13⅜	5¼	13⅞	8	N.P.	Simms Pet	27,600	12½	12⅝	11⅜	12¼	− ⅛
.....	.....	21	12¼	N.P.	Southern States	14,000	.....	16	14	14⅜	− ¼
5	1⅜	7⅞	2¼	5	Wilcox O. & G	16,000	.....	6⅝	6¼	6½	0

Pittsburgh Stock Exchange

1922 High	1922 Low	1923 High	1923 Low	Par Value	Stock	Transactions Week Ended Jan. 12 Sales	First	High	Low	Last	Ch'ge
12⅝	8¼	9⅝	7⅞	10	ArkansasNat.Gas	39,053	9	9	7⅞	8	1
55½	21	.....	.....	25	BarnsdallCorp.A	.....	.....	.....	.....	.....	.....
38½	20	.....	.....	25	do B	.....	.....	.....	.....	.....	.....
112¾	64½	.....	.....	100	Columbia Gas	.....	.....	.....	.....	.....	.....
49	42	.....	.....	N. P.	Cosden & Co.	.....	.....	.....	.....	.....	.....
81⅛	40	25	24¼	25	LoneStarGas	250	24½	24½	24¼	24¼	−¼
58⅛	45⅝	.....	.....	50	Manuf. Light	590	56	56	55½	55½	−½
45	28¾	.....	.....	N. P.	Marland Oil	.....	.....	.....	.....	.....	.....
15⅝	12⅜	.....	.....	N. P.	Middle States	.....	.....	.....	.....	.....	.....
23	15⅛	17½	16	1	Ohio Fuel Oil	815	17	17½	17	17	0
62	44½	60	59	25	OhioFuelSupply	95	59	59	59	59	59
26¾	19	20½	19⅞	25	Okla. Nat. Gas	1,630	20	20	19⅞	20	0
4	2	.....	.....	5	Okla.Prod.&Ref.	.....	.....	.....	.....	.....	.....
11	6	9½	8¾	5	PittsburghO.&G.	250	9	9	8¾	8⅞	−⅛
14⅞	8¾	11½	11⅛	10	SaltCreekCons.	840	11½	11½	11⅛	11¼	−¼
37¾	8	34	34	N. P.	Sinclair Cons	10	34	34	34	34	.....
47⅞	46½	.....	.....	25	The Texas Co	.....	.....	.....	.....	.....	.....
14⅝	10	11	10½	N. P.	Tidal Osage	400	11	11	11	11	0
18⅜	9⅜	13⅛	11½	N. P.	Transcontinental	250	13⅛	13⅛	11½	12	−1⅛
25	24½	24½	23¾	25	UnionNat.Gas	894	24	24½	24	24½	+½

Pittsburgh Curb Market

1921 High	1921 Low	1922 High	1922 Low	Par Value		Transactions Week Ended Jan. 12 Sales	First	High	Low	Last	ch'ge
.....	.....	.....	.....	1	Boston-Wyoming	.....	.....	.....	.....	.....	.....
3½	1	4⅞	1¾	5	Colombia Synd	500	1¼	1¼	1⅛	1⅛	− ⅛
.....	.....	.....	.....	.....	Crescent Pipe Line	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	5	Duquesne Oil	5,420	2⅜	2⅜	2	2	− ⅜
392	300	800	315	100	Gulf Oil Corp	7,100	61¼	61¼	57¾	59	−2¼
.....	.....	.....	.....	25	do. new	435	57½	57½	55⅛	55⅞	−1⅜
.45	.16	.42	.20	1	Mex.-Wyo. Oil	5,200	.30	.30	.30	.30	0
.....	.....	.....	.....	.....	States Oil	58	22	22½	22	22½	+ ½
24	05	09	06	5	Twin City Oil	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	Guffey-GilGasProd	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	1	Homer Union Pet	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	5	Mutual Oil	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	Ind. Nat. Gas	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	10	Marshall Oil	.....	.....	.....	.....	.....	.....
.12	.01	.06	.03	1	West Texas	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	25	Ohio Oil	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	N. P.	Marland of Mexico	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	Oklahoma Eastern	1,100	1½	1½	1½	1½	0
.....	.....	.....	.....	10	Omar Oil & Gas	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	Noble Oil & Gas	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	International Pet	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	Penn-Mex. Fuel	.....	.....	.....	.....	.....	.....

*New High †New Low xEx. Dividend or Ex. Interest ‖ Ex. Rights